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## The Edward Stirling Lectures.<sup>1</sup>

### LECTURE I: THE SIGNIFICANCE OF MODERN EMBRYOLOGY IN PATHOLOGY.

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Scyllarus on his death-bed, being about to leave four-score sons surviving, offered a bundle of darts to each of them, and bade them break them. When all failed, drawing the darts out one by one, he easily broke them—thus teaching his sons that if they held together they would continue strong; but if they were divided they would become weak.—PLUTARCH: "Apophthegms of Kings and Great Commanders."

THESE addresses, for the honour of delivering which I would sincerely thank your post-graduate committee, are in memory of Sir Edward Stirling. Like all truly great men, he was characterized by a remarkable range of knowledge of and breadth of interest in several diverse fields. It was reflections on the probable interconnections of apparently unrelated as well as more nearly related subjects that suggested the subject for tonight's discussion. It is a further point of personal interest that Sir Edward was a surgeon who, in later life, became more closely interested in other branches of study.

With rapid increase in the last century in the amount of available information, to say nothing of elaboration of methods of obtaining it, it is understandable and indeed essential that we should become specialists. This applies particularly to any study which involves technical application and skill. Nevertheless such specialization, though enabling advances in a given direction to be more rapid, possesses intrinsic disadvantages. The narrowness of the

channel connecting the individual with the main body of his fellows is likely to prevent the interchange of nutriment (in the form of ideas) and thus lead to inevitable atrophy. The special study can never be self-contained but must always receive sustenance from without. So though we cannot all be simultaneously anthropologists, zoologists, physiologists and surgeons, nevertheless we must be ready to recognize and accept discoveries in any department of investigation and where necessary incorporate them in our own field.

It is proposed here to review briefly the growth of ideas in pathology which depend on an understanding of the development of the individual, and to show how they have failed to advance adequately during the last half century. One of the most astonishing features of modern pathological literature is the complete dependence on and slavish following of the hypotheses of the later part of the last century, and the total ignoring (or possibly ignorance) of the truly remarkable investigations of the embryologists of this century.

### Present-Day Pathology: Some Principles and Hypotheses.

It is not possible, in the time at our disposal, to mention more than a very few of the salient and significant pathological problems. Certain of them have been chosen, partly because they are those that have specially attracted my attention during the last twenty-five years, but also because they exert an influence in some form on every department of pathology. Three subjects selected are the following: (i) the "congenital" origin of many conditions, with special reference to the meaning of the term "congenital"; (ii) the cell rest hypothesis; (iii) the origin and mode of development of many tumours, particularly the "mixed" tumours and the teratomata.

### "Congenital" Conditions.

That many diseases (particularly the malformations) are present at birth and arise during ante-natal life is

<sup>1</sup> Delivered on May 25 and 27, 1948, at Adelaide.

self-evident. This has been recognized since earliest times and would appear to require no elaboration. These conditions arise by alterations in some organ or groups of organs in the embryo or fetus. The presence of a condition at birth, its discovery occasionally in the immature fetus, and the similarity of its tissue structure to that of the embryo or fetus, provides us with clear circumstantial evidence not only for malformations but even for some conditions which in the ordinary sense cannot be so described.

When during the last century these questions were considered more closely from the point of view of the then recently discovered histology, the ideas became amplified. It was seen that with the growth and development of the individual, the cells of the body (in ordinary circumstances) gradually lose their capacity for proliferation and differentiation into other types of cells. The original cell (the ovum) is totipotent, cells of the blastomere are multipotent, but with each further stage of growth the capacity for proliferation and differentiation is reduced. Emphasis on these apparently obvious and irrefutable observations led to the idea that many, if not most, pathological conditions must necessarily arise from embryonic rather than adult tissues. Thus some diseases which begin in adult life—even old age—came to be regarded as being of "congenital" origin. If it be accepted that certain tissues are ordained to produce particular organs, then most abnormalities are due to defects in the original tissues. Thus the notion of inheritance became incorporated in the conception of the "congenital" origin of conditions—that is, the term "congenital" came to mean "hereditary".

It is extremely important to appreciate that conditions developing in the embryo or fetus fall into two distinct groups: (a) those due to attributes of the embryonic cells; (b) those due to acquired disease of the embryo.

That most "congenital" conditions are due to inherited factors appears to be the common view. Indeed, to judge by recent writings, it would seem that many diseases ranging from carcinoma of the lung to hemochromatosis are thought to be due to some such factor. It is fashionable at present to attribute many if not all ills in some measure to alterations in genes. Do not think that I would decry the importance of genes—we can see it every day when we observe that an individual has blue eyes, dark hair or a quick intelligence. We also see such conditions as the abiotrophies of the central nervous system, the "errors" of metabolism, and hemophilia, in which inheritance plays a prominent part. The gene is part of the cell; but what we must concentrate on in pathological conditions is the external influence which produces the change in the cell. It does not seem to matter greatly whether we speak in terms of enzyme systems, genes or merely nucleus and protoplasm.

A careful consideration of many "congenital" conditions indicates that they are clearly of the acquired type—that is, they are due to a disease of the fetus and not due to any inherited peculiarity. It will be seen that embryological work indicates this, but independently many pathologists have arrived at this conclusion. It should be a matter for pride that your State produced pioneer work which has been a milestone and will prove an increasingly significant landmark in our appreciation of this aspect of a common problem. I refer to the recognition of antenatal changes in eye, ear, brain and heart in cases of maternal rubella as being due to the infection. In passing, it might be noted that Titania and Oberon in "A Midsummer Night's Dream" made it clear, when discussing antenatal deformities, that these were due to extraneous influences and not to abnormal chromosomes or genes.

The essential point is that we must discourage the easy assumption that most diseases fall into the first class. Should we fail to do so, the hypothesis of inheritance, in the present state of our knowledge, is almost unassassable; but the impregnability is not due to inherent truth but to the difficulty of approach to the problem. It is customary to accept the "congenital" origin of any condition, once this has been suggested, as being correct until proved otherwise. Nicholson's observation<sup>12</sup> on such conditions is worth noting: "Is not their reputed 'congenital' origin

a euphemism for 'unknown'?" Why should we not recognize this and take the opposite point of view? Indeed, it is essential that before acceptance the "congenital" supposition should be proved. It is noteworthy that the particular view we take makes all the difference regarding possibilities of control of the conditions within a generation or so.

It is instructive to consider why it is so ingrained in us to accept without protest the "congenital" hypothesis for many diseases. It is merely that modern pathology grew up with cellular embryology, so that the ideas of the two were closely interwoven. The very name of a branchial cyst is sufficient to defeat any well-considered argument or careful observation of some other than branchial origin. The pilonidal sinus, to judge by some recent statements, must not be considered from any but the "congenital" point of view.

The important point is thus reached that there are many pathological conditions which, though usually dismissed without discussion, either are not truly ante-natal in origin or cannot be explained on the ordinarily accepted hypotheses. In the first of these there are pilonidal sinuses<sup>13,14</sup>—particularly the interdigital sinuses of barbers—and branchial cysts, and in the second accessory mammae (especially when they occur in such sites as the buttock) and encephaloceles of the lateral or parietal type. Time will not permit of discussion of these in detail. They are mentioned because usually such conditions are ignored or attempts are made to discredit observations made on them.

#### *The Cell Rest Hypothesis.*

The cell rest hypothesis of Cohnheim pervades almost all contemporary pathological writings. It depends on the false view, already described, that since the cells of a mature individual have lost their power of further proliferation and differentiation, any development in the adult must be due to growth of special types of cells—cells which have not taken part in the ordinary changes occurring with development and thus have retained their original potentialities.

This has given rise to the notion of special "undifferentiated" cells or groups of cells scattered through all tissues—the cell rests. Some investigators claim to have recognized such cells morphologically and even to have counted them in some tissues.

Experimental work shows clearly that if we postulate such "undifferentiated" cells they must be as numerous as the normal or differentiated cells of the tissue. This is shown by the extent and distribution of cellular changes in metaplasia in mucous membranes following vitamin A deprivation, by the changes of connective tissue to bone in the presence of excess phosphatase and by the changes in the cells of a region after the application of a carcinogenic substance. In such circumstances it is apparent that any or all of the cells may be affected and undergo alteration.

Many other examples both natural and experimental could be quoted; but what is clear is that all cells are "cell rests"—that is, all cells have retained in some measure their primitive capacity for proliferation and differentiation. This is the great lesson that pathology teaches, but we have not been allowed to listen to it because it comes into conflict with the hypotheses of seventy years ago.

#### *Tumours.*

If there is one thing that the study of tumours has shown us, it is that "adult" cells have not lost their power of proliferation. Given an adequate and appropriate stimulus, cells have a remarkable capacity for growth, both proliferation and differentiation, in various directions. This obvious phenomenon has been so difficult to correlate with preconceived views that special hypotheses have had to be developed. Indeed, the cell rest hypothesis was propounded and has been revived recently particularly to explain tumour growth.

As has been stated, however, the evolution of our knowledge of the carcinogens has made it possible to produce some tumours almost at will. It can be shown that in an

area adequately treated all the cells of a particular kind—for example, those of the epidermis—undergo change. In such a case, since any part of the skin could have been chosen, it is clear that any "cell rests" are coincidental with the normal cells. Nevertheless the old hypothesis is so deeply rooted (at least I find it difficult to advance any other explanation) that recent work, especially the experimental, is ignored in many discussions of the subject.

It may be noted here that some writers have described special cells in some tissues as being recognizable morphologically as possessing embryonic or "undifferentiated" characters. Since these cells are those which give rise to tumours (*sic*) they are termed oncocytes. It follows therefore that a tumour arising from these cells should be designated an oncocyroma.<sup>1</sup> This is mentioned here as example of the peculiar sterility of outlook that always accompanies adherence to outmoded hypotheses.

A source of polemics even amongst the neoplasms has been the group of "mixed" tumours. To take as an example the salivary tumours, which may be regarded as a pattern for other similar growths, various hypotheses were developed. The tumours were first considered to be true "mixed" tumours possessing tissues derived from two germ layers of the embryo. Though this conformed very well with the general embryological propositions of the last century it was found to conflict with observable phenomena. To explain the remarkably close relationship of epithelial and connective tissue structures, the tumours were classed as endotheliomata—thus the change of epithelium-like structures into such a connective tissue as cartilage was rationalized. When the epithelial character of part of the tissue could not be ignored, they were grouped with carcinomata and the "cartilage" was regarded as an epithelial mucinous tissue or pseudo-cartilage. Through all this time, however, a few pathologists have maintained that careful observation clearly showed first that the tumours were composed of epithelium and true cartilage, and secondly that the epithelium gave rise to the cartilage. A thoughtful and well reasoned discussion on the subject of mixed tumours of the breast<sup>10</sup> is one of the highlights of the contributions of this group. It is instructive to note that amongst the ebb and flow of hypotheses the observations have remained rock-like and firm; though attempts have been made to mould these to fit various conjectures no permanent result has been achieved.

The teratomata, of course, have always provided an excellent playground for the less scientifically minded person. It was perhaps inevitable that during and prior to the last century these growths should have been regarded as arising from ova. For a very long time their presence was regarded as *ipso facto* evidence of immorality. We have not the time to pursue the matter of the evolution of hypotheses in any detail, but it is a subject worthy of some study. The ideas concerning the fertilization of polar bodies or ova of the fetus captured attention for some little time—serious discussions waged round the significance of the similarities of the colour of hair in a dermoid cyst and that of the father of the patient in whom the cyst occurred.<sup>11</sup> Later blastomeres were thought to be the originating cells; but the discovery of twenty-two dermoid cysts in one individual<sup>12</sup> raised in an acute form the question of how many blastomeres could be left in such circumstances for the production of the individual containing these growths.

The commonly accepted present day view is that these tumours must be derived from some latent cells, and that this must be true to an even greater extent than it is with ordinary tumours. Such a point of view is supported by the variety of tissues found in these growths. This conglomeration of tissues has been responsible for the ideas which, present for centuries, have become so deeply rooted as to be almost ineradicable. These demand some attention.

<sup>1</sup> It is appreciated that the term "oncocyte" was introduced as a designation for certain cells of the ducts of salivary glands, which were the antithesis of "pycnocyte".<sup>13</sup> The term "oncocyroma" was used originally<sup>14</sup> for the tumour of the salivary glands known as the adenolymphoma. However, the terms have come to be used indiscriminately for more than one kind of cell and for tumours other than those of the salivary glands.

The principal idea is that tissue masses represent actual organs, and therefore the tumour is another individual. This was implied, of course, in its derivation from an ovum. Indeed, the names and concepts of monsters and monstrous growths or parasites have arisen from the complexity of the growths. All gradations are to be found, from conjoined twins through the various complex "parasitic" tumours to the simple neoplasms in which only one tissue—for example, squamous epithelium—is found.

It would require a more than competent psychologist or psychoanalyst to make clear the reason for the attachment that is obviously felt towards the teratomata. Every tumour that can possibly be squeezed into this group (and often on the flimsiest evidence) is so classified. There has been a recent attempt so to group pineal tumours on their morphological resemblances to some testicular tumours.<sup>15</sup>

Many papers have been written pointing out the essential agreement of the structure of teratomata with that of parts of the body. From this it has been a short and easy step to regard them as identical, and the published records contain many "descriptions" of organs of all kinds. I do not propose to discuss the matter here in detail, but would refer you to the excellent papers of Budde<sup>16</sup> and Nicholson.<sup>17</sup> They have emphasized the absence of metameric segmentation and the complete lack of justification for recognition of parts of an embryo in a teratoma.

A more modern but essentially similar problem has been the correlation of various tissues in the growth with tissues of the three germ layers (an index of complexity of structure). Indeed, it is usually accepted that for the diagnosis of a teratoma or dermoid cyst it is necessary to demonstrate the presence of two or more of the germ layers. This can take us a long way from the previous conception, and we now find that certain tissues have come to be recognized as coming from specific layers. Thus in a tumour squamous epithelium indicates ectoderm, columnar cells and glands indicate endoderm, and most other tissues indicate mesoderm.

Careful observations over many years have shown the absurdity of such premises. To take one example only: squamous epithelium occurs characteristically in the skin, and thus does perhaps immediately suggest ectoderm; but it is also found (commonly in pathological conditions) in the respiratory and alimentary tracts, where it is endodermal. It is found also in the uro-genital tract (kidney, uterus, *et cetera*), and it also arises from peritoneum or pleura and may be produced experimentally. Nevertheless statements in current text-books and papers show a remarkable reluctance on the part of many writers even to question, let alone depart from, the old ways.

We thus arrive again at the same place as with congenital conditions and cell rests—that though many would like to and do cling to the older views, observations cast the gravest doubt on the validity of the hypotheses. Since it is these hypotheses which inhibit the unrestrained consideration of all aspects of the problems, it is essential that the foundations on which the hypotheses were built be reviewed.

#### Embryology of the Nineteenth Century.

Embryology in the form in which we now know it began to take shape in the early part of the last century. Ideas which previously had been vague or obscure were gradually becoming crystallized, and with the discovery of the achromatic microscope and with the genesis of cellular embryology, the last altercations regarding preformation and epigenesis faded away. The ovum was discovered, innumerable observations of many kinds were made, and within a few decades a remarkably comprehensive system of hypotheses had been developed.

Observations and the ideas based on them encompassed the whole field of zoology. Pander's work<sup>18</sup> on three embryonic layers, which had been adumbrated in the previous century by that of Caspar Wolff at Saint Petersburg, was quickly elaborated. Von Baer<sup>19</sup> developed and

formulated the recapitulation theory, and the embryonic or germ layers were emphasized to provide a definite criterion for homology. The recapitulation theory was elaborated by Meckel, and it was given still further impetus by Rathke's observations on the gill-slits in mammalian embryos. The names of Remak, Kölleker, Müller, Haeckel, Hertwig, His, Roux and many others are all associated with particular contributions, and they usher us into what is usually regarded as the modern period. It is apparent that, during this stage, embryology was very closely linked with and indeed was a part of zoology, comparative anatomy and pathology. Segregation into separate departments did not become significant until late in the century.

It is obvious that a knowledge of structure usually precedes any appreciation of function. It is in no derogatory sense therefore that we say that the characteristic of this era was a preoccupation with structure. Morphology was everything, and very little time was given to any consideration of function or to factors which might govern or control this structure.

There was a clear description of the multiplication of cells from the first division of the zygote up to the formation of the adult individual. Various stages were clearly defined, and various organs peculiar to special stages of development—for example, the *septum transversum*, the allantois and the pronephros, amongst many others—were defined and described.

However, an essentially morphological attitude (naturally) influenced all ideas about the various structures. Possibly as a remnant of the old preformation hypothesis it was not even imagined that any structure could disappear. Even when it apparently disappeared, every effort was made to find its direct lineal descendant amongst the maze of tissues of the later stages. While this was laudable, it is regrettable that, when the lost structures could not be followed, the defect was overcome by means of coloured diagrams indicating what should have been found.

This idea of existence in *perpetuum* reached its culmination in the three germ layer hypothesis. This hypothesis obviously arose because the embryos most easily and economically dealt with in a laboratory were those in which the ova contained large yolks. In these the developing embryo is necessarily stretched out, and thus many temporary segregations of tissues are laminar in form. Had other embryos been investigated first—for example, some insects, molluscs or higher mammals—it is doubtful if the hypothesis would ever have seen the light of day. When it was born, it was elaborated and given special prominence as demonstrable evidence for the existence of homologues which were so important in the evolving conception of phylogeny. It helped to demonstrate the truth of the proposition that the individual during development climbed (or perhaps rather clambered up) his ancestral tree; or as our forebears preferred it, ontogeny was an epitome of phylogeny.

Thus there unfolded a complex system in which on the one hand there was a common meeting ground for all animals, where various structures could be compared even if not actually identified with each other, and on the other a method for the recognition of developing tissues, so that the most wayward could always be extricated from the complexities of the adult body. That the various layers each placed some indelible, even if indefinable, imprint on its progeny was an inherent and integral part of the idea.

There was thus a peculiarly rigid and mechanical point of view regarding the various cells and tissues. This of course embraced the views mentioned earlier about the gradual loss of the power of growth and the immutability of the germ layers. It was inevitable that these ideas should have been the basis of the hypotheses of the blossoming pathology. These ideas have continued to form the basis of pathological ideas; but, as has been stated, a large weight of evidence has gradually been accumulating which demands some revision of them. Most investigators, with the exception of a few sporadic ones, have resisted such evidence in favour of authori-

tative hypotheses. It is desirable therefore to see whether embryology has travelled.

#### Modern Embryology.

In this evening's discussion that part of embryology which has developed during this century is arbitrarily considered as "modern". Although seeds of modern ideas were sown earlier, the extraordinary advances of this century date from when Hans Spemann began to publish his observations.

This progress was due primarily to the discovery and elaboration of techniques in experimental investigation of embryos of various kinds. This allowed removal of various tissues and organs, grafting of such tissues and thus the observation at various stages of development of changes which followed such manipulations. A large volume of writings has grown up in this field, but those interested are recommended to consult such a review as that of Joseph Needham.<sup>(10)</sup> Many workers have added their quota in this rapidly expanding field; but the Mangolds (Otto and Hilde), Harrison, Holtfreter, the Needhams and Waddington deserve special mention.

It has been shown that cells and tissues are not necessarily predestined to form other tissues, but that their fate is determined by a number of factors, one of which is their relationship to surrounding structures. If the position of cells is changed, in their new site they become something quite different from what they would otherwise have been. Certain parts of the developing embryo at an early stage have a strong determining influence on other parts, and they have been designated the organizers. When a structure is formed—for example, the optic cup—it in turn produces its effect as exemplified by the formation of a lens from the overlying surface epithelium. The original cell groups have been called primary organizers and the second group secondary organizers, and still others become significant in their turn.

A great advance was made when it was shown that tissues could produce their characteristic effects after the cells had been killed. It thus became clear that these effects were due to the presence of specific chemical substances produced by the tissues. These chemical organizers have been thought to be sterols, but their nature is not yet certain.

During this half century various postulates have been produced. The first was the axial gradient hypothesis of Child.<sup>(11)</sup> According to this idea, tissue (and cellular) evolution is determined by cellular relationship to and distance from the axis of the individual and incidentally the various nearby tissues. In retrospect this can be regarded as one facet of other propositions.

The hypothesis of organizers<sup>(12)</sup> was actually earlier in inception, but did not unfold into a clear form until a later period. This conception is well substantiated by a large volume of experimental work; but it has been found to be inadequate for the explanation of many phenomena. It is indeed too simple a proposition to cope completely with the many increasingly complex observable phenomena.

Thus there has grown up an idea of fields of tissue activity—the "individuation field" hypothesis. The action of tissues (and their chemical products) is seldom a matter of one-way action (as suggested by the "organizer" hypothesis) but rather one of reciprocal action. There are many examples where the tissue which is obviously being acted on induces changes in the "more active" tissue.

The coincidental advances in biochemistry have had their influence on embryological views, and this applies particularly to the relationship of and possible identity of genes with enzymes and enzyme groups. This, however, serves to clarify minutiae of cell activity rather than to influence the wider views of physiology and growth.

The various views mentioned are regarded sometimes as being antagonistic; but this is not fundamentally true. Actually they are conclusions arrived at by consideration of the problems from different points of view, and with various degrees of comprehension of their complexities.

These hypotheses and the observations on which they are based have necessarily influenced all the older views,

and of these the three germ layer idea has been particularly affected. Amongst the earliest experiments there were some, such as that of transplantation of surface cells into a myotome where they then developed as muscle, which showed clearly that the previously held idea would have to be modified.

Let us stop for a moment to consider, as an example of departures from the orthodox, the hypothesis proposed by Gaskell.<sup>10</sup> From a study of many features of insects and vertebrates he concluded that the ordinarily accepted homologies were unreasonable, and that the alimentary canal of arthropods was actually homologous with the central nervous system of vertebrates. Although the true significance of this suggestion was not generally appreciated, it actually cut at the very roots of the three germ layer hypothesis. Even though Gaskell's view may be of only historical interest, nevertheless it showed that a distribution of ectoderm and endoderm common throughout the animal kingdom was mere speculation.

Apart from the many observations that were being made incidentally to the experimental work, investigators were noting carefully the fate of cells and details of tissue formation in many animals. This has recently been reviewed and described by de Beer<sup>11</sup> in an illuminating paper. In a clearly stated argument he expresses the present viewpoint:

There is no invariable correlation between the germ layers and either the presumptive organ-forming regions or the formed structures. . . . The germ layer theory in its classical form must therefore be abandoned.

In review we observe that during the last century a complex and at the time satisfying philosophical system was developed to integrate the large number of collected facts. A further large accumulation of observations has demanded such modifications as amount to disintegration of the group of hypotheses. The present-day problem is that the innumerable, ever-increasing and often disconnected observations are being accumulated without as yet the development of an adequate unifying principle.

It has been possible here merely to suggest a glimpse of a fascinating and limitless panorama. The important feature as far as we are concerned is that a point of view has been achieved which is as different from the ideas of the last century as they were from the notions of the preformationists of the seventeenth century.

#### *Influence on Pathology.*

The experimental work was of immediate pathological interest and importance, since a range of possibilities in tissue transformation was demonstrated—at first—in the changes following mechanically produced abnormal circumstances. Later the chemical phenomena became significant and are still increasing in importance. The various principles (as yet very incomplete) arising from these observations have been accepted by embryologists; but, perhaps because they have been made largely in lower animals, they have received attention from but few pathologists.

It was found that conjoined twins, double monsters and various forms of complex growths could be produced experimentally. These were significant, in that they duplicated many types of naturally occurring abnormalities and in due course others will be produced. The important conclusion from this is that the potentially normal individual can be stimulated to form, for example, a double headed monster, one with two bodies, or one of many other types of abnormality. Modifications in the chemical character of the organizers (occurring when ova become "over-ripe") have been shown to give rise to growth aberrations of this kind. It is not possible to consider this matter in greater detail here, but the far-reaching possibilities of this rapidly expanding field of study are self-evident.

It is thus clear that the various abnormalities are due to changes which occur in a developing individual who, but for some accidental environmental change, would have been normal. We do not know what produces the change (presumably in the chemical nature of the organizers

or their counterparts); but one clue has been provided by the action of rubella virus in the cases mentioned earlier.

Further observations on the changes in tumours following the introduction of organizers are also most illuminating. Such substances produce an effect on rapidly growing cells (not on adult cells), and the experimental production of differentiated tissues in simple malignant growths,<sup>12</sup> if substantiated, will carry us a long way toward understanding complex growths.

As yet the embryological work of this century is being regarded as having only an indirect importance in pathology, if any. As was suggested above, this may be due in part at least to the (quite unjustified) point of view that observations made on lower animals are not applicable to human beings. This is interesting, since no such objection is raised to the older views which were so based. Apart from any single observation or group of observations, the change in viewpoint must have a far-reaching influence on our ideas. At present, as has been indicated several times, we are prevented from accepting everyday phenomena because of rigid hypotheses. Let us take a few examples.

It is not necessary now to argue about the nature of the tissues in the salivary tumours. Do we appreciate and realize that most of our ideas have been governed by opinions on what epithelium could not do? Now that we are beginning to see that at least in some circumstances epithelium can produce tissues previously accepted as mesenchymal (and therefore non-epithelial), such arguments become futile. Do not think that now we have no problems and that necessarily any tissue can change readily into any other. What is true is that we may now consider our problems and collect our observations (a task no easier than it was before) without the cramping stringency of the older views.

Many classifications of tumours are based closely on the germ layer conception. Although it is not usual to carry this to the detail of Adami's classification, nevertheless it imposes restriction and obvious artificialities. There have been many heretics who have upheld the importance of observation over organized speculation; but they will be none the less glad to have support from an embryologist such as de Beer.

Pathologists will benefit rather than suffer from a realization of the incompetence of the germ layer theory to contribute to an understanding of the causes of morphological and histological differentiation in development.

When we see structures in some site where they are not usually found—pancreas in the stomach or jejunum, gastric epithelium in the colon, squamous epithelium in a bronchus, "adrenal" tissue in the kidney, amongst many others—we are not now compelled by some inflexible doctrine to clamour for "cell rests". It may be a long time before we know how these phenomena occur; but at least we need not regard them as impossible of development in the adult. I would suggest that all that is necessary is that we should examine these phenomena with an open mind. If we do so, it will be found that in pathological conditions we have a tremendous store of naturally occurring (if uncontrolled) experiments which are the complement of those of experimental embryology.

So in *résumé* we see that we have some inkling of the mode of development of many "congenital" conditions. We are able to put cell rests amongst the obsolete stepping stones which have helped us pave our path, but now are of value only as museum pieces. Tumours, particularly the teratomata, are to be understood as tissue proliferations which show special individuation formations and do not possess any peculiar mystical, moral or even embryogenetic features.

Although it must be emphasized that during the last few decades some pathologists have been thinking in these directions, we have now come to the place where we must all accept a different concept regarding much of our pathology. This change comes directly from a correlation of our work with that of the embryologists, from whom many would appear to have been segregated for almost

half a century. It is an excellent demonstration of the necessity for the closest possible association of the various branches of knowledge. To quote Alexander Pope:

Heav'n forming each on other to depend,  
A master, or a servant, or a friend,  
Bids each on other for assistance call.

Till one man's weakness grows the strength of all

If it might appear that some of the statements made earlier suggest lack of appreciation of or a disregard for the work of such giants as Virchow, Cohnheim, Ribbert, Marchand and many others of the same period, I would give you Dean Inge's aphorism:

There is no greater disloyalty to the great pioneers of human progress than to refuse to budge an inch from where they stood.

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#### RECENT DEVELOPMENTS IN SOCIAL MEDICINE IN NEW ZEALAND.<sup>1</sup>

By G. H. M. LUKE,

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of the British Medical Association.*

IN 1935 New Zealand elected a Labour Government largely as a recoil from the then economic recession and in the optimistic belief that an extensive programme of social security measures would prevent a repetition of those conditions. In 1941 the stage was reached where medical benefits were to be introduced. The Government went ahead with its plans against advice and despite the fact that the British Empire was engaged, almost lone-handed, in a major war.

<sup>1</sup> Read at a meeting of the Western Australian Branch of the British Medical Association on August 21, 1948, and of the New South Wales Branch on September 2, 1948.

The British Medical Association in New Zealand warned the Government in 1941 that free medical treatment would impose too great a strain on a profession which had one-third of its members absent with the armed forces. With the lapse of time has come the full proof of the value of this warning. Much of the criticism which has been heard from time to time arose from a lack of medical practitioners to undertake the additional work which was imposed by a free scheme. The return of men from the services and other increases in numbers have been followed by a reduction in the incidence of public complaints.

The best that can be said for the scheme of medical benefits is that it accomplished its political purpose of providing substantially free medical treatment by general practitioners. The main criticisms are that the cost in taxes is high, the morale of both patient and doctor has been affected and the people as a whole do not appear to be any healthier. The number of admissions to hospital, consultations and prescriptions has increased steadily since the inception of the scheme.

At the outset the medical profession was not consulted as to the manner in which the scheme was to be operated. The Government announced a universal capitation scheme whereby every man, woman and child was to enrol on a panel and the doctor was to receive 15s. per annum for each person enrolled. The Association reacted violently against the scheme, stating the following objections: (i) it was unfair to create fixed panels while so many were absent on active service; (ii) the Government could not expect to transfer an unlimited insurance risk for a fixed fee; (iii) the standard of medicine would decline if patients were bound; (iv) freedom of choice of medical adviser would be substantially lost; (v) entry to the medical profession would be possible only by purchase of a practice.

An active campaign ensured that only 40 doctors joined the scheme; 80,000 patients signed contracts. Today some 15 men practise capitation for part of their practices only, and the number of patients has declined to 15,000. It is clear, then, from experience in New Zealand that, after trial, both patient and doctor have rejected the capitation system.

Faced with the unworkability of the capitation scheme and with a staunch and united medical profession, the Government moved, after sharp conflict, to its first compromise, the "fee-for-service" system. Under a subdivision of the system called the "direct claim" method, the patient signs a form as each medical service is performed. At the end of each month the practitioner forwards the forms to the district medical officer of health. Disbursements are made to the doctor at the rate of 7s. 6d. per day time attendance, 12s. 6d. for nights and week-ends plus 1s. 6d. for each five minutes in excess of thirty minutes. In country practices car mileage is allowed.

The British Medical Association in New Zealand would not accept this method for the following reasons. (i) A medical practitioner's relationship should be wholly with his patient without the intervention of a third party having economic rather than medical interests. (ii) A fixed fee would compress each service into a standardized consultation without regard for the individual case. (iii) Over-visiting and exploitation would become possible, and irresponsible patients could be expected. (iv) The principle of quantity and not quality would tend to depress standards.

A few adopted the direct claim system in areas where the number of uncollected accounts made normal practice impossible. Ninety-five per centum of the profession adhered to the Association's dictum, necessitating the introduction by the Government of a further compromise known as the "refund" system, which has always had the official support of the New Zealand Branch of the British Medical Association. Under the "refund" method, the doctor preserves his former relationship with the patient, who, on paying his monthly or quarterly account, receives a receipt on which the dates of attendance are specified. This receipt is used as a voucher to obtain standard refunds through the agency of the post office. The long-standing and customary fee of 10s. 6d. is charged in normal circumstances.

Within a short time a few doctors perceived the advantages of yet another system, known as the "token" system. The patient signs a form, which enables the practitioner to recover payments from the fund under the "direct claim" system, but is charged 3s. per visit in addition and as a cash payment, for which, in some cases, no receipt is given.

The "fee-for-service" system which now exists in its three forms has been the subject of criticism under political, social and medical headings. The Government states that its election promises of a completely free service have not been implemented, that the service costs too much, that some medical incomes are higher than socialism can contemplate with equanimity, and that administration of the refund method is cumbersome. The patient, with memories of war time, says that medical attention is given reluctantly at nights and week-ends, that he does not get the free service to which his tax payments entitle him, and that his refunds are obstructed by red tape. The medical practitioner feels that free treatment has developed irresponsibility in the patient, who will sign any government claim form without question and who hawks his complaint from doctor to doctor until he gets the answer or treatment he desires or has just read about in a favourite magazine. Requests for certification for food rationing, petrol and travel facilities, and for free drugs and consultations for trivialities have increased alarmingly. Finally, and with greatest force, the doctor says that the experiment has assailed the traditional standards of a small section of the profession.

An impartial observer would credit the medical profession with having maintained its position during the first clashes and, indeed right up until the present, despite its loosely knit and wholly voluntary organization. A group whose normal tendency is towards strong individual personalities has achieved unity of purpose through a conviction that the course set has been in the best interests of the standard of medicine. On the other hand, the Government has displayed some moderation and in one instance only has resorted to compulsion. Section 8 of the *Social Security Amendment Act*, 1941, provides that a medical practitioner may not sue for his just debts in the courts except for an amount not exceeding that which is refunded to the patient as a benefit from the Social Security Fund—namely, 7s. 6d. per consultation. Although the medical profession rarely, if ever, resorted to the courts, and the legislation has little practical value, it was viewed as a deprivation of civil rights repugnant to the principle of British citizenship. The profession replied by refusing to accept any administrative obligations under social security legislation, and to this day committee appointments essential to the success of the scheme remain unfilled.

The problem has come under review recently, and an early repeal of the offending section can be anticipated as a prelude to full scale participation in administrative functions.

The Government's other major venture in this field has been to provide free pharmaceuticals. In its early form it was provided by regulation that the cost of certain drugs would be charged direct to the Government by the chemist; if the doctor should prescribe other drugs, then the patient would pay for these himself. There is no evidence that the medical profession was ever advised which drugs were free or how much each cost, although of course chemists were kept fully posted by health department circulars. The doctor continued to prescribe as he thought fit on his own forms.

After a little time party members and pressure groups began to demand that more and even more substances should be added to the free list. The Government complied in almost every case, until aspirin, cough medicine and almost every day-to-day substance is now obtained free on a medical prescription.

As could only be expected, costs rose sharply and there have been bitter complaints from the Government. Some ground was lost by the profession in public esteem, and much time and thought have been devoted to British

Medical Association public relations in what appears to have been a successful attempt to stem the tide of criticism.

The cost of medical benefits rose from £1,016,053 in 1942-1943 to £2,167,825 in 1947-1948, while that of free drugs rose from £563,247 to £1,558,350. The Government has not hesitated to say that this rise in costs has been due to the medical profession's exploiting the scheme by over-visiting and by costly prescribing. These charges have been investigated, and in both cases it has been found that the faults may be attributed more to the scheme than to the medical profession.

In the course of an address to the New Zealand Branch of the British Medical Association given at our conference in Dunedin in February, 1948, the Minister of Health stated that 30% of the practising medical profession received £3000 *per annum* from the fund. The Minister was possibly unaware that she had been provided with a gross figure from which the costs of practice should be deducted, a net income of less than £1500 being left which is, comparatively, barely adequate in times of depreciated currency. The Minister might well have gone on to say that the same set of statistics revealed that 40% of the practising medical profession received less than £1000 from the fund as a gross income. It has since been discovered that the health department was unaware that many of the major incomes are in respect of partnerships or practices where one or more assistants are employed.

Recently we set up a committee which made a careful inquiry into the causes of the increase in cost of pharmaceuticals and the following factors were isolated: (i) The number of doctors in practice has increased by 50% since 1942. (ii) More than 100,000 men and women, on demobilization, ceased to be a charge on the war expenses account and were transferred to the Social Security Fund. (iii) The public are progressively becoming aware of their benefits under free medicine. (iv) Drugs have increased in cost to two or three times their pre-war level. Sales tax has been increased to 20%. Percentage profits further increase these costs. (v) Items previously paid for are now free. Purgatives, paraffin, aspirin and compounds, methylated spirits, cod-liver oil, malt, cough medicines, tonics, Benedict's solution and a host of other everyday substances have been added to the free list by the Government. (vi) There is a growing demand for newer treatments and for prophylactics such as concentrated vitamins for colds.

The most effective criticism of the scheme as a whole is that it provides mainly for the trivialities of family life, which the breadwinner would gladly meet himself. Major surgical and other disasters are ignored. Few are unable to meet the cost of two or three general practitioner consultations for each member of the family in each year; but outside the overcrowded public hospital system, the expenses of major surgery or specialist treatment continue to cripple family finances, despite heavy taxation which is levied on all, rich or poor, without graduation or exemption.

There does not seem to be any escape from the fact that in medical matters any government which is sensitive to pressure exercised by its supporters will give way to demands for increased benefits. Then when costs rise a search for a scapegoat commences, and the medical profession, being a small minority, is blamed and the party propaganda machine comes into operation against it.

The medical profession in New Zealand passed through several uncomfortable years while the Government announced its dissatisfaction with the existing scheme and its preference first for a universal salary scheme. Later, when salary schemes became discredited in Labour Party philosophy, a universal capitation scheme was advocated mainly because of the manner in which such a system lends itself to budgetary control rather than for its medical merits.

The members of the New Zealand Branch of the British Medical Association have stood firmly against these suggestions. This has always been at the crux of the problem in New Zealand, where medical men have repeatedly made it plain that an overwhelming majority will always act in accord with the decisions of the Branch. If I have any

message to bring to you from New Zealand, it can only be to say that the influence which our profession can have on the future of medicine is in direct proportion to the degree of our unanimity of thought and action and our loyalty to our own organized controlling body.

However, it is not sufficient to be united and to stand firm. We must know exactly what we are united about. That is, we must have a clearly defined and well thought-out policy together with a plan of action. These decisions do not come to us easily, and they do not come unless we set up machinery to make them—that is, unless some policy-forming body is created.

We arrived at this stage in our thinking some years ago when the Branch set up a Medical Planning Committee which sat for three years under the able guidance of Dr. W. F. Buist, of Hawera. This committee gave the Branch a sound basis of well-defined policy. Its report cleared the way for us to advance to discussions with the Government secure in the knowledge that certain lines of action could be adopted while others could not.

The year 1947, therefore, was entered with two great assets: a solid unity within the profession and a sound basis of logical and well-defined principle.

A general survey of the position in New Zealand has led us to the belief that social medicine in some form has come to stay, whatever government may come into power from time to time. Modifications are, of course, inevitable, especially since more than one-third of the total revenue of the State is being absorbed by social security measures. Nevertheless it would be futile to look for a cessation of the impact of government decisions on the medical profession. This step in thinking forced us to a further conclusion that we should seek some share in planning the future of social medicine. We were influenced, too, by the fact that an ever-increasing number of our own members had, in commencing new post-war practices, adopted methods of remuneration other than the one which received the Association's official support. This led to confusion, in that different methods were used side by side and even within the same practice. It appears to us that it is desirable to bring one standard system of remuneration into use.

A third factor was also given weight. The maternity benefit operates in New Zealand with every satisfaction to patient, doctor and State. This scheme was first brought down by the Government without consultation and in a form which the medical profession could not accept. In this instance full consultation with the profession followed and a most satisfactory scheme was evolved. Here, then, was a clear demonstration of the value of a full exchange of views and of a policy of moderation on both sides.

Accordingly, in late 1946, we suggested to the Government that a Joint Committee be established of members of the Department of Health and of the New Zealand Branch of the British Medical Association to sit under the chairmanship of an independent member of the legal profession.

The considerations which led the Government to accept this proposal after a number of years during which the Association had received little official recognition are not known. It may have been that, by active organization, we had increased our membership by 25% and so reached a strong position, or that the Government is not now so strong either in numbers or in convictions, or it may have been that a demand was made for control of expenditure. Whatever the reason may have been, the committee commenced its sittings in late 1947, and when I left New Zealand a few days ago had just handed its report to the Government.

The Joint Committee's report is the most momentous event in the medico-political field in New Zealand since 1941. If its recommendations are adopted—and I know no reason so far why they should not be adopted—the method of remuneration will undergo a change, specialist benefits will be introduced, and the medical profession, through its own organization, will accept an official position with enhanced importance in the planning and administration of social medicine. We shall make a considerable advance,

in that statutory power will be conferred on us to check what is now a perceptible drift in standards, by action which we shall be able to take within our own domestic circle.

There has been much evidence of interest in the recommendations made by the Joint Committee, and I know that you will wish me to review the main provisions, at least. I am somewhat handicapped by the fact that the report has not yet been released. This forces me to keep my remarks within the bounds of an earlier statement which was made during our recent biennial conference; but it will be found, when the report finally comes to hand, that the following survey is adequate in so far as the more important findings are concerned.

The proposals fall under four main headings. The first provision is as follows: That steps should be taken to place upon the medical profession itself—that is, on the New Zealand Branch of the British Medical Association—a large measure of responsibility for the planning of social medicine on the one hand and for its proper working on the other.

To accomplish this purpose it is planned to create, and to nominate British Medical Association members to serve on, two new statutory bodies—the first to be a general advisory committee with numerous subcommittees which will be recognized by the Government as the principal consultative and advisory body in matters affecting medical services, and the second to be a central disciplinary committee which will take action against those members who do not comply with the letter and the spirit of the scheme or who commit ethical and other breaches. Local investigating committees will assist the central body. This new disciplinary body will not clash with the Medical Council of New Zealand, but will act after the manner of a lower court to deal with lesser offences, which cannot be classed under the severe heading of "grave impropriety" or "infamous conduct". The second recommendation is that there should be only one fee-for-service method of making benefits available to patients from the Social Security Fund.

It is proposed that the medical practitioner claim on the fund—on behalf of the patient—the appropriate refund and apply that amount in part settlement of his charge for the service. It will be seen that the Association has undertaken to modify the "refund system", which previously was recommended as the most suitable, to the extent that the medical practitioner will now undertake the purely book-keeping function of obtaining on behalf of the patient such benefit as may be due and applying it towards settlement of the patient's account. The adoption of this proposal has necessitated restoring to the medical profession an unrestricted right to recover just debts in the courts; but we in turn have conceded that a patient or magistrate may, if he feels such a course desirable, submit his account to our disciplinary body for taxation in much the same way as a solicitor's account may be taxed by the Registrar of the Supreme Court. The medical practitioner's relationship with his patient remains undisturbed, and he does not become concerned in any way with the amount of the social security benefit, but only with its collection and application towards settlement of his fee, which he is still free to fix at an amount commensurate with the service performed.

Above all, the principle that private medical practice will continue without modification has been established and confirmed.

Minor points are that those few who have hitherto practised consistently under the capitation or refund system may continue to do so if they so desire; but it will no longer be possible to have some patients under the capitation system and others under a section of the fee-for-service system.

A much simplified system is proposed for general practitioner remuneration. Patient certification will be dispensed with, as it has been found to be in the main of less value than anticipated. The medical practitioner will claim benefits on behalf of his patients on a schedule which will indicate the name and address, the fee and the benefit, and certify that the services have been performed.

A proportion of the claims will be checked by the health department with individual patients.

It is intended that the doctor will submit his normal account to each patient for the full charge. A standardized form is to be used, which will show clearly the full fee, the amount of the benefit deducted and the balance due. The receipt which is issued when payment is made will also be standardized, and will show that the benefit has been obtained "on behalf of the patient".

The third section of the report deals with the introduction of benefits from the Social Security Fund for patients who require specialist treatment of a medical or surgical nature. The Government included this subject in the order of reference for the committee. It is not possible to say a great deal about this subject, as the committee did not go further than to attempt to define the problem and to suggest that it should be referred to subcommittees of persons having particular knowledge or experience in the field.

The problems are to fix the quantum of benefit to be paid in each case and to define the service for which it is to be made available. Definition of the service entails creating a roster of specialists, and we shall undoubtedly encounter much difficulty in laying down definitions which will enable this to be done. The introduction of specialist benefits will also increase the financial burden on the Social Security Fund; but this, fortunately, is not a matter for the Association.

Under the heading of pharmaceutical benefits the committee has made a most interesting and important recommendation and one which has a bearing on the problem with which you are confronted here in Australia. The committee was unable to suggest any means whereby control could be exercised over the mounting costs of free drugs other than that matters be so arranged that a proportion of the cost of each prescription should fall on the patient.

No other effective means of imposing restraint on the ever-increasing demands which are made by patients could be devised, and the principle of part payment was strongly recommended. Some exceptions to the rule, such as the supply of insulin to diabetics, were noted.

Reference was made to the revision and extension of the present formulary for use as a guide in prescribing, and the increased use of disciplinary powers where abuses are detected, as possible avenues of approach.

I want to touch briefly on another aspect of our work in New Zealand. We have given a lot of time and thought to the well-being of our members who are full-time salaried officers of the public hospital system and of the State. The remuneration levels of this class of member of our Association are undoubtedly low by comparison with other sections of the medical profession in New Zealand and in the United Kingdom.

On our making strong and repeated representations the Minister of Health set up a Statutory Committee to investigate, and to make recommendations regarding, remuneration levels in the public hospital system. After some delay a subcommittee met and heard evidence, but the Central Committee has not yet considered the recommendations. We are informed that it has been found that substantial advances in salaries in all grades of hospital medical employment are justified; but whether the delays which seem to encumber any action of this nature can ever be overcome to a degree which will permit increases to be made, remains to be seen.

The policy of stabilization which has been followed in New Zealand tends to bear more heavily on those in the comparatively higher income brackets. The Stabilization Commission has steadfastly refused to consider increases in the salaries for medical posts for more than two years, with the result that many of the appointees are heavily underpaid in an economy which has a strong inflationary tendency.

The two reports which have been issued by the committee which sat in the United Kingdom under the chairmanship of Sir Will Spens, one dealing with remuneration levels in general practice and the other with

specialists' incomes, have been perused with great interest. One of the purposes of my visit to Australia is to learn from you your reactions to this problem, and to ascertain whether grounds exist for concerted action between the Branches in our two countries on the subject matter of these two admirable reports.

We are very far from satisfied with the progress that has been made, particularly since we have not been able to do anything to help officers of the various State departments. However, some steps have been taken in the right direction in the interests of this section of our membership.

This brings me to the close of the factual portion of my remarks. I have endeavoured to outline very briefly the highlights in the history of our social medicine experiment in New Zealand in such a way as to give special attention to its impact on the medical profession. The difficulties which have been encountered in the scheme from the points of view of the patient, the doctor and the Government have been stated without reserve, and I have outlined to you why we saw fit to make a move towards a solution of our differences with the Government. An outline of what will probably be the main provisions of the report of the Joint Committee has been given, and I feel that I shall not be saying too much if I indicate that we have some hopes that we may be embarking on an era of cooperation and development, in which the medical profession will play a large part and will accept a proper and official share in planning and operational responsibility.

At the risk of exceeding the time that is at my disposal I want to make one further point before closing my remarks. I feel that there has been one strongly coloured thread running through the pattern of our experience over the past several years. That thread can be called only "unity". The extent to which we have been able to retain an influence over our own medical future has always been in direct proportion to the degree with which the medical profession has stood together.

There is only one way in which we can sacrifice our influence on the future of medicine, and that is by allowing disunity within our own ranks. This does not mean that we must disregard progress or refuse to meet new problems with an open mind; but it does mean most emphatically that we cannot afford dissension within our ranks. New and even more socialistic tendencies are to be observed in medicine in the United Kingdom, in Australia and in New Zealand, where nationalization of the medical profession is being pressed on by socialist governments and resisted stoutly by the organized profession. In New Zealand, because we have achieved a high degree of unity of thought and purpose within the profession, progress is being sought very properly through the medium of discussion and joint investigation. Again, gaining complete unity of purpose is a matter of machinery. Facilities must exist for close contact with individual members, for regular advice regarding current problems and decisions and for frequent expressions of opinion throughout divisions or subsidiary societies.

However, I want to go even further than this and to advocate the closest possible cooperation between those Branches of the British Medical Association which are distributed in different parts of the Empire. Recently, and with great pleasure, we heard from our parent body in London of the formation of a British Commonwealth Medical Council to deal with problems which confront us all in times when ideologies are in conflict. I should like to suggest tentatively that regular Australasian talks would be of the utmost value over the next several years. Every nation in the world appears to be at one or another stage in the development of social medicine. Governments most certainly exchange the fullest information by means of papers and visits, and I feel that in so far as we may be neglecting similar precautions we are handicapping ourselves in our endeavours to preserve our principles and standards.

If I have succeeded in nothing else but in bringing home to all that the keynote of our New Zealand experience is "unity and planning within the profession", my time will have been well spent.

**BLADDER-NECK OBSTRUCTION: A REVIEW OF FIVE HUNDRED AND EIGHT CASES TREATED BY ENDOSCOPIC RESECTION.<sup>1</sup>**

By HENRY MORTENSEN,  
Melbourne.

Of the many methods of approach to the bladder neck none has caused more bitter debate and more argument as to its place in the surgical armamentarium than that of the perurethral route in the operation of prostatic resection.

From an historical point of view attempts at removal of obstructive tissue from the region of the bladder neck via the urethra had antedated, in some instances by centuries, any other method of approach.

It was suggested by Civiale over a century ago that the idea of passing a piercing instrument into the urethra to open a way must have presented itself at about the same time as sounds and bougies were first used, some time before Christ. References of Galen and others are vague, and it was not until the time of Ambroise Paré in the sixteenth century that any definite description of an operation of this nature was made. He described a sound with several sharp ridges on its surface, which was inserted into the urethra and turned in various directions in an attempt to overcome the obstruction. Paré used an instrument (Figure I, A) like a catheter, with a hemispherical button at the end with a cutting edge, which was designed to pick up and crush the obstruction. Guthrie (Figure I, B) described an instrument for cutting the bladder neck, and Mercier (Figure I, C) and Civiale (Figure I, D) both elaborated instruments for definite incision of the bladder neck.

With the introduction of the electric current and the galvano-cautery, it was only natural that attempts should be made to remove obstructions by this method. Instruments were devised by Bottini (Figure II, A) and by Chetwood (Figure II, B) for use through the urethra, and by Wishard (Figure II, C) for use through the perineum. Later, in 1914, Luys (Figure III) used the method of forage of the prostate, in which the tissue was coagulated down to the urethra. The diathermy punch was described in England by Kenneth Walker.

All of these methods were, however, doomed to failure. In the preendoscopic days the procedure was blind, and later the heavy coagulation of tissue by diathermy and electrocoagulation produced scarring, sepsis and hemorrhage.

In 1926, Collings (Figure IV) utilized the then recently introduced cutting current to incise and remove portions of the prostate with his now well-known knife. This, along with the other methods described, attempted to remove obstruction by cutting a channel through the obstructing tissue. However, when the Stern resectoscope which used this current became popular and was improved subsequently by McCarthy, of New York, and when Bumpus, of the Mayo Clinic, presented the successful results of a large series of cases of obstruction treated by the cold punch, great interest was evoked throughout the world, and particularly in America. The persuasive words of smooth-tongued salesmen and the glowing reports of successful cases appearing in all the surgical and urological journals soon produced a wave of enthusiasm. In a comparatively short time, it is stated, 3000 resectoscopes were sold by one firm alone, many of them, as one can imagine, to persons little qualified to use them. Some degree of halt was called to this wave of enthusiasm by the thoughtful and eminently fair article of Bransford Lewis, "Prostatic Resection without the Moonlight and Roses".<sup>2</sup> At the beginning of his article he made the following statement:

A certain degree of "poetic license" no doubt should be accorded enthusiasts obsessed with impressions derived from early successes of a newly devised surgical procedure. Acknowledgement should be made that to

the optimists, not the pessimists, belongs the credit of pushing and pulling progress over the top and compelling advances along the surgical frontier. Nevertheless, it behoves the analytical minded to continue their commendable habit of awaiting the sober second thought on the subject; to expect the unexpected; to anticipate the possibility of some rough sailing over apparently serene but uncharted seas. Such thoughts are awakened by the course thus far of endoscopic prostatic resection.

We hope and pray that the fate that befell Julius Caesar, who died of too many Roman punches, may not befall these admirable means and methods. If it does, it will, perchance, be on account of the over-enthusiasm and the misguided word-painting that have been indulged in concerning them.

The facts developed were as striking as the title. The conscientious members of the profession proceeded to take stock. They recorded the dangers of mechanical insults to the bladder and urethra, revealed by perforations and strictures, the troubles with hemorrhage and incontinence

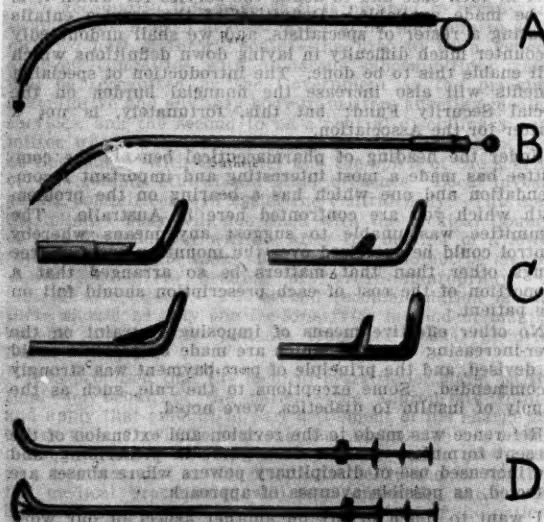


FIGURE I.  
Historical view of early transurethral instruments for the relief of bladder neck obstruction. A. Paré's instrument used in 1575 to relieve obstructing "caruncles" of the bladder neck. B. Artist's conception of Guthrie's instrument for cutting the "bar at the neck of the bladder". C. Mercier's instrument for the removal of "valves" of the bladder neck: (a) combined prostatic excisor and incisor, 1839-1841; (b) incisor, 1844; (c) incisor, 1847; (d) excisor, 1850. D. Civiale's prostatic "kliotome" for the relief of urinary retention caused by "engorgement of the prostate": (a) redrawing of the instrument, closed; (b) the same, open. (From "History of Urology", prepared under the auspices of the American Urological Association, 1933, facing page 140.)

Inherent difficulties in estimating the amount of obstruction of urine, and the aftermaths of inadequate resection—sepsis, severe hemorrhage of the secondary type, and persistent obstruction. The critics—many of them of the armchair type, unable to use the instrument or unwilling to spend the time and physical and mental energy necessary to acquire the requisite skill—had for the time being full sway.

However, one feels that the position has today righted itself and that endoscopic resection has taken its proper place in the field of prostatic surgery. Reed Nesbit, of Ann Arbor, Michigan, has been foremost among numerous protagonists of the operation. His book entitled "Transurethral Prostatectomy"<sup>3</sup> is classical. The title is naturally provocative, since for the first time claims are made that the whole prostate is removed and the capsule exposed in its entirety. This conception has revolutionized

<sup>1</sup> Read at the ninth annual meeting of the Urological Society of Australasia in February, 1948, at Melbourne.

the operation, removed it from the haphazard performance in which an almost arbitrary and often microscopic amount of tissue was removed, and coincidentally has obliterated many of the poorer results.

For the purpose of this short paper the cases of bladder-neck obstruction that have been presented to the writer in his private practice over a period of something less than five years have been reviewed. In all, in this series there were 689 cases (Figure V). Of these, 508 patients, or 82% of those operated upon, were dealt with by endoscopic resection, the instrument used being the McCarthy electro-tome; 110 had the prostate removed by a suprapubic approach. The balance of 71 cases was made up of cases in which operation was refused, cases in which a suprapubic cystotomy was compulsorily performed as the only method of treatment available for one reason or another,

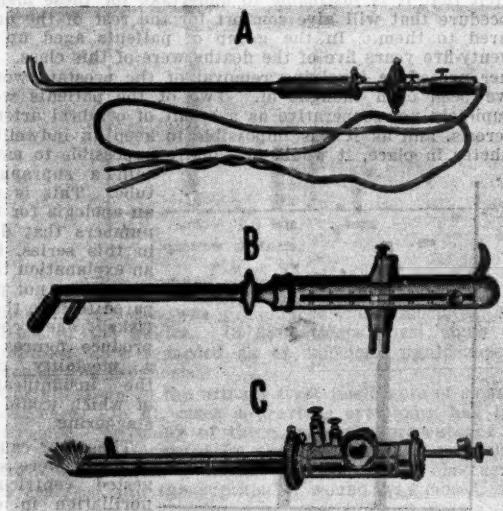


FIGURE II.

Early instruments used for galvanocautery procedure to relieve prostatic obstruction. A. The Bottini instrument as modified by Freudenberg (1873-1897). B. Chetwood's prostatic galvano-incisor. C. The Wishard instrument for galvanocauterization of the enlarged prostate through a perineal buttonhole. (From "History of Urology", prepared under the auspices of the American Urological Association, 1933, facing page 149.)

and cases of obvious clinical carcinoma of the prostate treated by orchidectomy or stilboestrol. In all there were 66 cases of carcinoma, or less than 10%, made up of clinically obvious carcinoma, of doubtful cases proved by microscopic section after resection or of clinically unsuspected malignant disease revealed by routine microscopic examination of the fragments removed. In this last group there were few cases. Although many of the pieces removed at resection were carefully examined by a competent pathologist, in only six cases was unsuspected carcinoma revealed. The relative accuracy of this assessment is suggested by the fact that on only three occasions was the condition subsequently found to be malignant on clinical grounds after a report of benignity had been given. So that, if these three are included, nine cases of unsuspected carcinoma were revealed by resection, a matter of 1.9%. One of the early arguments advanced against prostatic resection appears to be answered by these figures. It was stated that in many cases unsuspected malignancy, which would be more adequately dealt with by enucleation by one route or another, would be stimulated to active growth by the irritation of resection. The truth of this statement is denied. The adequacy of the resection in competent hands, coupled with the very low incidence of unsuspected carcinoma in this series, suggests that it would be only occasionally that such a happening could occur.

Coupled with this argument is the fact that one sees quite a number of cases of carcinoma of the prostatic bed occurring after suprapubic prostatectomy, even when this prostatectomy, so far as can be found out, was perfectly simple and no doubt was felt as to the benignity of the pathological process.

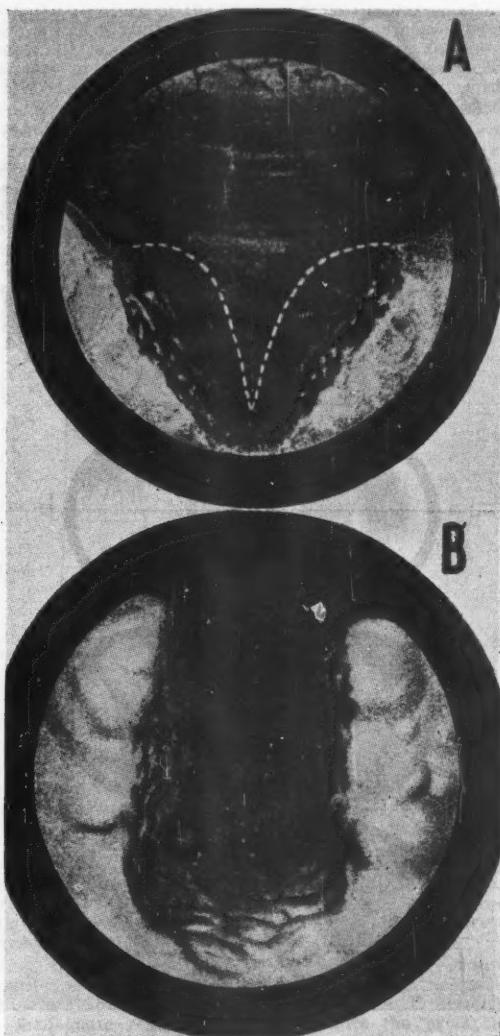


FIGURE III.

Luys's method of "forage de la prostate" (1914). A. The dotted line represents the area of prostatic median bar hypertrophy that has been destroyed by electrocoagulation. B. The tunnel finally produced through the hyperplastic tissue. (From "History of Urology", prepared under the auspices of the American Urological Association, 1933, facing page 158.)

The average age in this series is 67.5 years. This is considerably higher than most reported series, owing to the fact that more of the elderly group of men are subjected to operation without fear by resection. One hundred and twenty-four patients were aged seventy-five years or over, a percentage of 25; 36, or 7%, were aged eighty years and over, made up of eight patients aged eighty years, five aged eighty-one, five aged eighty-two, five aged eighty-three, two aged eighty-four, three aged eighty-five, three aged eighty-six, three aged eighty-seven, one aged eighty-eight, and one

aged eighty-nine years. The average age of patients suffering from carcinoma was seventy years.

Among the 508 patients treated by endoscopic resection there were 16 deaths—a mortality rate of 3·1%. It is interesting to note that the mortality rate in the age group seventy-five and over was lower than the overall

which a cystotomy was performed, as being less likely to cause worry than the usual evacuation by syringe with its attendant pain. He recovered well from this, and when up and about waiting for his discharge, developed a coronary occlusion and died suddenly.

The second patient in this group was a member of the medical profession, aged seventy-six years, a very "poor risk" suffering from cerebral arteriosclerosis. In this case again, because of the difficulty of management of a suprapubic tube, it was suggested to me strongly by the attending physician that something curative should be attempted. Operation was followed by death from pneumonia on the twelfth day.

This position crops up very often. The patient himself knows the horrors of a suprapubic tube, his relatives, if he has any, are loath to undertake the responsibility and work of looking after it, the attending medical practitioner uses his persuasive influence, and under such conditions it is felt that it is justifiable to undertake for these men a procedure that will give comfort for the rest of the days spared to them. In the group of patients aged up to seventy-five years five of the deaths were of this class. No other procedure involving removal of the prostate would have been even thought of. Two of the patients were completely non-cooperative as a result of cerebral arteriosclerosis, and as it was impossible to keep an indwelling catheter in place, it would be equally impossible to maintain a suprapubic tube. This is not an apologia for the numbers that died in this series, but an explanation that if one was not prepared to take these risks, one could produce figures of a mortality rate the insignificance of which would be staggering.

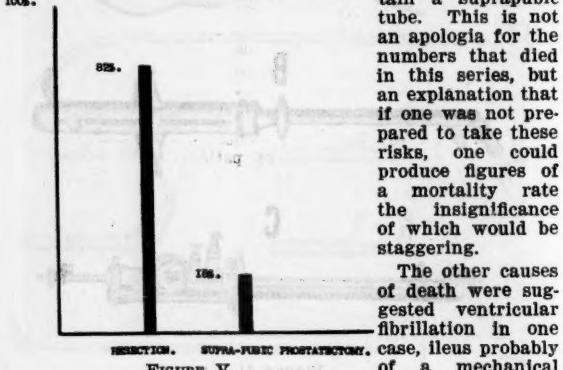


FIGURE V.

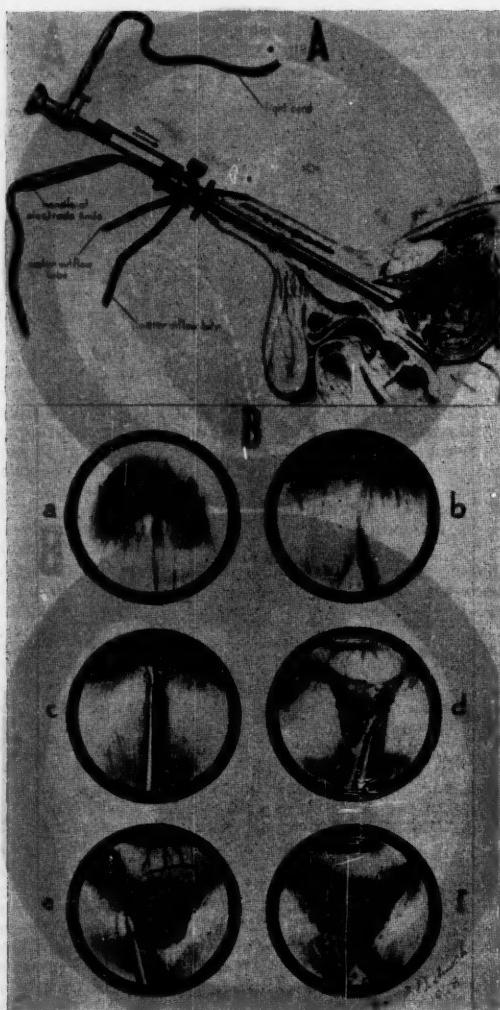


FIGURE IV.

Collings's electrotome. A. Instrument in place, with the long insulated electrode engaged in the hypertrophied tissue at the bladder neck. B. Diagram showing the different steps in the technique of excising the bladder neck obstruction with Collings's knife electrode: (a) and (b) cystoscopic view of median bar at the bladder neck; (c) electrode cutting at 6 o'clock; (d) cutting at 5 o'clock; (e) cutting at 7 o'clock; (f) the completed tunnel resulting from prostatic bar resection. (From "History of Urology", prepared under the auspices of the American Urological Association, 1933, facing page 166.)

percentage, two patients dying out of 124—a rate of 1·6%—whilst one only of the octogenarians failed to survive the operation—a rate of 2·75%.

This patient, a very "poor risk" from every point of view, with poor cardiac and pulmonary reserve and poor renal function, and unable to care for a suprapubic tube if it was introduced, was subjected to resection of forty grammes of tissue, the immediate convalescence being excellent. A secondary haemorrhage occurred on the twelfth day, for

cytosis from sulphanilamide poisoning, acute cardiac failure, coronary sclerosis, bronchopneumonia and haemolysis. This last phenomenon is of recent recognition; after endoscopic resection the patient may lapse into anuria with icterus, and the presence of free haemoglobin in the plasma reveals the nature of the condition. It is due to the entrance of the irrigating water solution into the blood stream through the opened veins. Two cases have been encountered in the last year; one patient, after recovering from this state, died in his sleep on the tenth day; the other made a complete recovery. It is noteworthy that in only four of the fatal cases was there any post-operative surgical complication that could have had any bearing on the final result. No case of fatal complication due to mechanical accidents such as perforation occurred in this series.

The advantages claimed for the operation of endoscopic resection fall under various heads.

The first—namely, a low mortality rate—has already been touched upon. The ability to get the patient out of bed early (many are allowed up on the first or second day after operation, practically all on the third or fourth day) is most important in the age groups with which the urologist has to deal. The stay in hospital, which is rarely over ten days after operation, is of economic importance in these days of high costs and shortage of hospital beds.

The lack of pain and post-operative inconvenience reduces the incidence of shock and chest complications and produces a confidence in the operative procedure which, it is believed, has a bearing on the result. This likewise makes the retelling of the patient's operative experiences on his first visit to the bowing green of considerable

interest to the hesitant neighbour who is endeavouring to make up his mind to have something done.

An analysis of the ages of patients operated upon has already demonstrated that greater risks from the cardiovascular and pulmonary point of view can be undertaken. Sixty-one of these patients suffered from arteriosclerosis of varying degree, as evidenced by hyperplesia, by thickening of vessels, and in some cases by a history of previous coronary occlusion or anginal pain on effort. Myocardial upset was shown by dyspnoea on exertion,

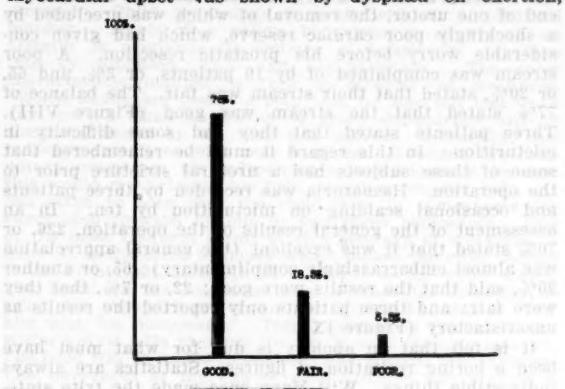


FIGURE VI.

which in 44 cases was pronounced and associated with oedema of the ankles. In 33 patients chest signs and symptoms were regarded as of sufficient significance to influence the prognosis.

Complications in the urinary tract itself were of common occurrence. In 51 cases a previous cystotomy had been performed. In many of these cases the presence of the tube had been regarded by the surgeon as a permanent state of affairs, but by means of resection the obstruction was removed and the suprapubic wound was closed.

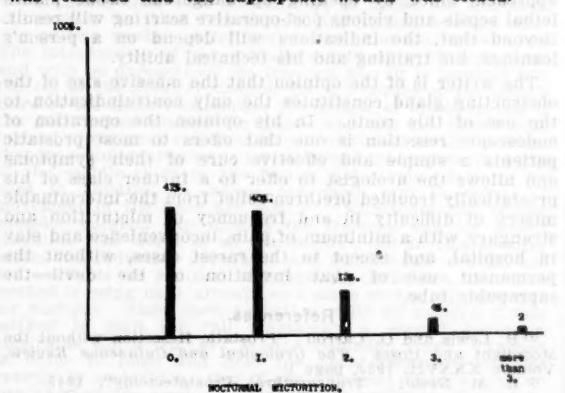


FIGURE VII.

Sixty-one patients (12%) suffered from an accompanying calculus disease, stones occurring in the bladder or, more rarely, in the kidney or the prostate. Vesical calculus was dealt with by lithotripsy in most instances, but on occasion the prostate was resected and the bladder opened at the end of the operation and the stone picked out.

Stricture of the urethra was present in 26 cases, in eight cases a diverticulum of the bladder was found, and in a further nine cases a bladder tumour.

Most of the objections that have been raised against the operation have been on the grounds of post-operative complications in the urinary tract itself. It is suggested by the antagonists of this method that sepsis in the immediate and distant post-operative period is common. That has

not been the experience of the writer. This opprobrium has been laid at the door of resection often as a result of the finding of large numbers of leucocytes in the urine within a few weeks of the operation. This is of common occurrence, as is also the presence of some degree of residual urine. With the epithelialization of the resected area, which often takes a long time to accomplish, and with the recovery of the bladder from the degree of atony from which it suffers in most cases of true obstruction, in nearly all cases the residuum will clear up, as also will the pus in the urine. The incidence of post-operative epididymitis is high when vasectomy is not performed, so that now this procedure has become a routine measure.

Post-operative haemorrhage, so common in the early days of resection, is now not a notable complication. It is the writer's practice to use an inflatable bag with continuous irrigation for a period of forty-eight hours, but without instituting any traction on the bag. Worrying reactionary haemorrhage is practically never seen, and secondary haemorrhage requiring readmission to hospital (since all patients are discharged before this becomes likely) does not occur once in a year.

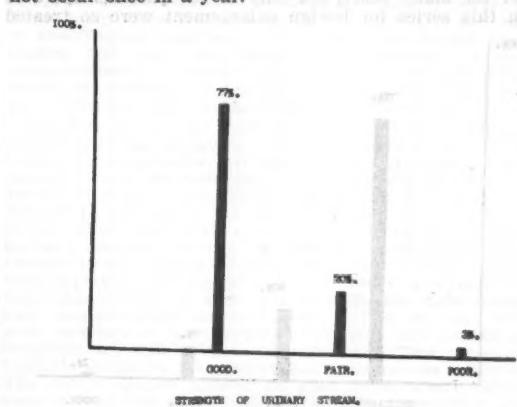


FIGURE VIII.

Incontinence of urine, either partial or complete, has been a bogey of resection since its introduction. In this series some degree has been present in 23 cases for varying periods of times from days up to weeks. This is, of course, not a particular complication of resection, as in the series of suprapubic operations six patients complained of this distressing complaint, and during the time under review three patients were referred to me after prostatectomy performed by other surgeons for relief of complete incontinence. In only two of the resection group was there any degree of permanence in the condition.

Incontinence of urine in the early days of resection was regarded as inevitably being due to damage to the external sphincter. More commonly it is thought now to arise from an inadequate resection, which permits the prolapse of tissue through the external sphincter, or from the fusion of lateral lobes which holds the sphincter open. In some cases infiltration of the sphincter due to malignant disease or the scarring of inflammatory tissue may produce the same result. Some temporary imbalance between sphincter and detrusor muscles would produce a similar result.

The other troublesome complication has been stricture. This is due to the introduction of a large rigid instrument through a narrow urethra, associated with continued pressure throughout the operation. It is worthy of note that some urethras appear to have a curious sensitivity to manipulation. Stricture has been seen where neither of these factors has been present, and a similar happening has been seen to follow the presence of an indwelling catheter introduced with ease. It occurs at the meatus, where it may be obviated by a properly executed meatotomy, or in the bulb. Its occurrence is prevented by care in the introduction of the instrument or of the bags used in haemostasis. Should there be the slightest difficulty in the introduction of a sound of similar calibre

to the resectoscope, then a perineal urethrotomy is performed and the instrument is introduced through this route. This approach is of great value in the treatment of the obese, when the subpubic ligament is abnormally short, preventing the necessary depression of the instrument for its introduction, when bony or joint deformities prevent the proper placing of the patient, and in the presence of a large scrotal hernia.

Ten patients suffered from urethral stricture requiring subsequent dilatation, and in only one of these cases has the procedure been carried on as a routine measure for over six months. Stricture at the bladder neck due to the formation of an iris diaphragm has been seen after operation in two cases. In this regard it is worthy of note that of the patients under review, 13 underwent resection for the relief of obstruction following suprapubic prostatectomy performed elsewhere.

A further argument often advanced against the operation is its inadequacy, revealed by persisting obstructive symptoms, or by the recurrence of obstructive symptoms. Although this type of approach has been used by the writer for many years, six only of the patients operated on in this series for benign enlargement were so treated

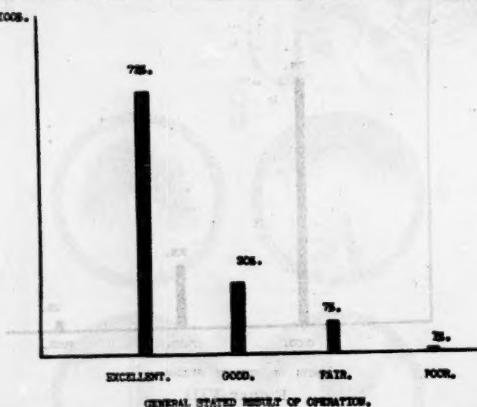


FIGURE IX.

on this account. In four of these cases the second operation was performed within three months, in one case six years after the original resection, and in the other after four years. Three patients in this series had had their prostate removed by a suprapubic approach, and resection was performed in one case after ten years, in one after eight years and in one after seven years.

Only one case of vesical calculus formation after resection was seen in this period—a further striking example, surely, of the efficacy of the operation in relieving obstruction.

It has always been the impression of the writer that a mere recital of mortality rates occurring whilst the patients are in hospital tells an inadequate story of the results of a particular procedure. An attempt has therefore been made by means of a questionnaire addressed to all patients who left hospital to evaluate the distant results. The questionnaire was as follows:

- Mr.....  
 I. Condition of health: good fair poor.  
 II. I pass urine at night.....times.  
 III. The stream is: good fair poor.  
 IV. Blood in urine: yes no.  
 V. Difficulty in passing: yes no.  
 VI. Scalding: yes no.  
 VII. General result of the operation: excellent good fair poor.

The response was satisfactory. In 404 such questionnaires 45 of the patients were reported dead, most of them from cardiac or cerebral accidents, 15 inquiries were unclaimed, and 20 replies were received from patients suffering from obvious carcinoma. Of the others, 246, or 76%, stated that

they were in good health, 60, or 18.5%, were in fair health, and the balance were in poor health (Figure VI); 41% did not pass urine during the night, whilst a similar number passed it once only; 42, or 13%, replied that they passed urine twice during the night; 19, or 4%, three times; and seven, or 2%, more than three times (Figure VII). Of the last-mentioned, two in their letters that accompanied their replies admitted that it was a matter of habit, and another was a patient with chronic sepsis due to the presence of a large ureteral calculus in the lower end of one ureter, the removal of which was precluded by a shockingly poor cardiac reserve, which had given considerable worry before his prostatic resection. A poor stream was complained of by 10 patients, or 3%, and 65, or 20%, stated that their stream was fair. The balance of 77% stated that the stream was good (Figure VIII). Three patients stated that they had some difficulty in micturition. In this regard it must be remembered that some of these subjects had a urethral stricture prior to the operation. Haematuria was recorded by three patients and occasional scalding on micturition by ten. In an assessment of the general results of the operation, 226, or 70% stated that it was excellent (the general appreciation was almost embarrassingly complimentary); 65, or another 20%, said that the results were good; 22, or 7%, that they were fair; and three patients only reported the results as unsatisfactory (Figure IX).

It is felt that an apology is due for what must have been a boring recitation of figures. Statistics are always indigestible things. Will Mayo once made the trite statement that "statistics can prove anything, even the truth". This remark has been quoted often, and the writer is deeply sensitive of its truth. He has, therefore, been careful to endeavour to give a true picture of the case in favour of endoscopic resection.

The indications for resection vary tremendously for individual urological surgeons. All cases in which a capsule has not been formed by the normal process of enlargement must be treated by resection. This group will include cases of fibrous bars, of generalized sclerosis of the bladder neck, and of carcinoma. It is a crime for anybody to endeavour to enucleate these prostates by any other approach, since by opening up dangerous tissue planes lethal sepsis and vicious post-operative scarring will result. Beyond that, the indications will depend on a person's leanings, his training and his technical ability.

The writer is of the opinion that the massive size of the obstructing gland constitutes the only contraindication to the use of this route. In his opinion the operation of endoscopic resection is one that offers to most prostatic patients a simple and effective cure of their symptoms and allows the urologist to offer to a further class of his prostatically troubled brethren relief from the interminable misery of difficulty in and frequency of micturition and stranguary with a minimum of pain, inconvenience and stay in hospital, and except in the rarest cases, without the permanent use of that invention of the devil—the suprapubic tube.

#### References.

(a) B. Lewis and G. Carroll: "Prostatic Resection without the Moonlight and Roses", *The Urological and Cutaneous Review*, Volume XXXVII, 1933, page 1.

(b) R. M. Nesbit: "Transurethral Prostatectomy", 1943.

#### Reviews.

##### AN INTRODUCTION TO MEDICAL PSYCHOLOGY.

For some years L. Erwin Wexberg lectured on psychiatry to medical students. He has now written an "Introduction to Medical Psychology". He sees an increasing future for mental hygiene and believes that all medical practitioners must have knowledge of psychological principles. The book commences with a section on the individual and the community. The author introduces us to a certain "John Smith", a student of medicine, and shows us why he became a

"Introduction to Medical Psychology", by L. Erwin Wexberg, M.D., 1948. London: William Heinemann (Medical Books), Limited. 8" x 5", pp. 184. Price: 17s. 6d.

medical student and how he was "conditioned" to his social environment. This section deals with pleasure, power, ambition, vanity, work and sex. The author does not follow the traditional plan of arbitrary classification of cognition, affect and conation. Knowledge and action are dealt with in a short chapter which includes sleep. The section on emotions and instincts is particularly well written. The author gives an unbiased view of the current theories and a clear exposition of the work of Freud concerning temperament and personality and of Jung's conception of extroversion and introversion. The theories of Kretschmer are stressed. Child psychology is dealt with in a practical manner. Much of a child's behaviour is shown as an attempt to overcome its feelings of inferiority. It does this by ambition, play and self-assertion. The most characteristic manner is that of strategy of weakness. "When adults are ready to help him, he does not feel weak any more. Thus he learns to enjoy dependence and to dominate adults by his very helplessness. Naturally, this tendency interferes with real progress. It warns the baby not to overstress his independence and adequacy because this would mean losing his hold on other people's help. It can often be seen that the child tries to compensate for every step forward by one or two steps backwards. One of the most frequent forms of this strategy of weakness is fear. It is the same tendency which makes the child decline to eat by himself, although he is able to do so, which makes him insist on his mother's help in washing, dressing, or tying his shoe-strings, or on her sitting by him to help him with his homework." This quotation is typical of the writer's style. He presents his thesis in a readable manner. The book will be useful to students and medical practitioners. The references at the end of each chapter will provide a useful guide to further reading.

#### MEDULLARY NAILING OF KÜNTSCHER.

"**MEDULLARY NAILING OF KÜNTSCHER**", by Lorenz Böhler, is an objective study of the value of the medullary nailing which was originally published in German as the third volume (1944) of Böhler's comprehensive work on fractures.<sup>1</sup> Küntscher, in 1941, described this method of internal fixation of fractures of the long bones with a long steel rod inserted into the medullary cavity, through a small incision distant from the fracture field, in such a way that the fragments are so firmly held that the limb, as in nailed hip fractures, can usually be lifted immediately and moved actively after one or two weeks. After bony union, the nail is removed. The introduction of the medullary nail at a distance from and with no exposure of the fracture site (it is inserted into the tip of the great trochanter for a fracture of the middle third of the femur) minimizes the danger of infection and is the justification claimed by those who use the closed nail, instead of external splinting, in all fractures. Böhler believes that its main application is for all recent transverse fractures of the middle third of the femur, but it should never be used in children, in whom non-union and limitation of movement of the knee are rarities. Küntscher and Böhler consider surgical exposure of the fracture site for recent fractures "the worst of all treatments", but in this country where the reduction apparatus and fluoroscopic control are not available or popular, although the nails are, the open method is being used, already with some severe consequences for patients. Since open reduction must be avoided if this method is used for "all fractures", a special reduction apparatus has a pair of "wooden reduction rings" attached in order to push and hold the open medullary cavities exactly in apposition; two X-ray tubes at right angles to one another are used. A fluoroscopic assistant, dressed in a lead rubber apron and gloves with an operating fluoroscope, obtains the reduction. A third degree burn of the patient has been reported and the assistant also undergoes grave risk if he takes off his gloves.

The book is a study of 600 case histories as well as many verbal reports and they "revealed not only good results, but an unbelievably large number of complications and failures, besides a considerable number of fatalities...". The number of untoward incidents which may occur with medullary nailing is unbelievably great and reports about new incidents are received continuously... The worst complication is death. It has followed medullary nailing with comparative frequency". Böhler describes some operations as wrestling matches going on for hours and these cause shock and

<sup>1</sup> "Medullary Nailing of Kuntscher", by Lorenz Böhler, M.D.; first English edition, translated from the eleventh German edition by Hans Treter, M.D.; 1948. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 10" x 6". pp. 400, with illustrations. Price: 52s. 6d.

sometimes death. The circumstances leading to serious complications are emphasized for every type of fracture and are repeated in each chapter. The nail has cut arteries and nerves, and has penetrated the joints at operation or later by "wandering"; infection is comparatively common, especially if the nail is used for compound fractures. This is a most unusual and frank book, and all should read and study it before considering using the method which they may decline to adopt after they have read the book. It appears to us that the method should be confined to the middle third of the femur in special cases, for example, in alcoholic dementia or for elderly patients in whom prolonged splinting has disadvantages, and should be used only if adequate apparatus exists.

#### CLINICAL NEUROLOGY.

A SIXTH EDITION of Dr. Israel Wechsler's "Textbook of Clinical Neurology" has been issued.<sup>1</sup> The author has had a very wide experience in New York at the Mount Sinai Hospital, where he is head of the neurological service, and at the Montefiore Hospital, where he is consultant neurologist. These institutions are remarkable for the wealth and variety of neurological experience which may be gained in their clinics, and their neuropathological material is equally comprehensive. It is from this background that Dr. Wechsler writes his textbook of clinical neurology which has become one of the best known American works in this field.

The first part of the book is devoted to history taking, the correct methods of neurological examination and the technique of psychological investigation and diagnosis, the last section having been contributed by the author's brother, Dr. David Wechsler. The second, third and fourth parts are devoted to diseases of the nervous system, and the last part of the book deals with the neuroses. The descriptions of nervous diseases are not overburdened with detail and are essentially practical and up to date. They reflect the author's wide experience in the clinical field, and this feature of the book should make it especially valuable for undergraduates and post-graduate students alike. The sections dealing with methods of intelligence assessment and psychological diagnosis are well written and complete. They constitute a valuable source of information and reference on this subject. The text is clearly printed on good paper which makes it easy to read, and the volume contains many excellent photographs of patients and pathological material drawn from the sources mentioned above. The book concludes with a short history of neurology from the earliest times to the present century. Even though it is little more than a recital of the names of those who, down the centuries, have contributed to the subject, this introduction to the history of neurology is a valuable feature of the work and an addition to the cultural aspect of this special field.

#### IMMUNIZATION BY UNUSUAL ROUTES.

THE well-known bacteriologists of the Pickett-Thomson Research Laboratory in London, David and Robert Thomson, have compiled a book<sup>2</sup> which is in some respects in the Almroth Wright tradition, for its subject is the immunization by vaccines, but by novel routes. The oral route is a tempting one, for it rarely inconveniences the patient, it lends itself to mass administration and its use would perhaps be little more difficult than that of "Atabrine" was in the last war. The authors had completed this book in 1936, but for various reasons publication was not possible till this year. They have made a further search of the literature to include more recent work. They are kind enough to tell us that a book of this kind "is not meant to be read like a novel". It is a work of reference. In a cynical mood one might reflect that, in spite of all the evidence in favour of novel routes of immunization herein produced, and in honest fashion some evidence against them, yet one cannot remember any of the British or American

<sup>1</sup> "A Textbook of Clinical Neurology: With an Introduction to the History of Neurology", by Israel S. Wechsler, M.D.; Sixth Edition; 1947. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 9" x 6", pp. 848, with many illustrations. Price: 59s. 6d.

<sup>2</sup> "Oral Vaccines and Immunization by Other Unusual Routes", by D. Thomson, O.B.E., M.B., Ch.B., D.P.H., R. Thomson, M.B., Ch.B., assisted by J. T. Morrison, M.D., D.P.H. (Aberdeen); 1948. Edinburgh: E. and S. Livingstone, Limited (for the Pickett-Thomson Research Laboratory). 11" x 9", pp. 344. Price: 42s. net.

army medical staffs introducing these methods into the services.

It is not possible to do more than touch on some of the matters reviewed in this work. There is a rather bewildering discussion of results from the oral and subcutaneous use of typhoid and "T.A.B." vaccines. The authors recommend in general that the dose by the oral route should be 40 to 100 times greater than by the parenteral route. Reactions are said to be unusual, and then only mild. The vaccine is given in either tablet or fluid form on an empty stomach on three successive mornings and is preceded by an ox-bile pill. Unsatisfactory results are attributed to the use of small doses. The South African work by Pijper and Dau (1930) is quoted to show that O agglutinins are produced and not H, and apparently the oral method is much used there for mass immunization. Also successful results in the treatment of typhoid carriers are described. A large amount of work on the results of oral administration of dysentery bacilli vaccines is likewise reviewed, and the authors' conclusions, somewhat guarded, are that the evidence is less conclusive. Agglutinins are not found to any appreciable extent. The results with cholera and plague vaccines seem still less conclusive.

One hundred pages are devoted to immunization against tuberculosis, mostly with "B.C.G." vaccine. The authors conclude that there is now a definite tendency to favour the intracutaneous route, but they prefer to follow Calmette, whose "pioneer work has been fully confirmed and proved in spite of great opposition". There is a section on respiratory infections, colds *et cetera* for which various mixtures of bacteria are cultured and vaccines prepared for oral administration. The results are difficult to evaluate. The importance of the problem is illustrated by a statement of a Ministry of Health official to the effect that forty million man-days are lost annually through upper respiratory infections. But the bacterial agents are not the whole problem. Other sections of this work review oral staphylococcal vaccines, gonococcal, faecal (sic) and hay fever antigens, also the oral administration of toxins and antitoxins, and the use of sprays for immunization by the respiratory route, the application of ointment-vaccines to the skin *et cetera*.

The authors are to be commended for this compendious review of non-parenteral immunization. They have approached the subject on the whole in an objective fashion, though it is well known that they have long favoured these methods. Perhaps one good reason for honest doubt is the uncertainty of the fate that awaits a vaccine given by these methods, whether it is absorbed or contacts cells producing immune reactions with reliable regularity. Appended are a useful reference index to about 1000 original contributions to the subject, an alphabetical index to authors, and finally a subject index.

#### MIDWIFERY.

The post-war editions of several well-known students' text-books have recently made their appearance. One such is "Midwifery" by Ten Teachers.<sup>1</sup> Since the appearance of the last edition (1942) Arthur, Bell and Roques have replaced, as members of the group of ten teachers, Victor Bonney, Goodwin and the late Sir Comyns Berkeley. In spite of certain shortcomings, this is undoubtedly a good students' text-book. By comparison with other students' text-books on obstetrics, it is brief—but always to the point.

Without the introduction of controversial matter, there seems to have been a genuine effort to include in the text all recent developments in the field of obstetrics of proven value. One of the best sections in the book is the chapter on malpresentations; the text is generously illustrated in this section and the advice offered is, generally speaking, sound.

As might well be expected in a book compiled under the direction of Clifford White, there is an excellent account of the disorders of uterine action, especially in reference to uterine inertia and contraction ring dystocia. On the other hand, the discussion on the toxemias of pregnancy seems often to strike an unrealistic note. Generalizations are perhaps inevitable to some extent in a brief students' text-book, but greater stress could have been laid on the need for considering each case on its merits, especially in relation to the therapeutic termination of pregnancy for what is termed by the authors "recurrent albuminuria". The question must

<sup>1</sup> "Midwifery", by Ten Teachers, under the direction of Clifford White, M.D., B.S. (London), F.R.C.P. (London), F.R.C.S. (England), F.R.C.O.G., edited by Clifford White, Frank Cook and William Gilliat; Eighth Edition; 1948. London: Edward Arnold and Company. 8<sup>1</sup>/<sub>2</sub>" x 5<sup>1</sup>/<sub>2</sub>", pp. 568, with many illustrations. Price: 20s.

be faced as to whether we can afford to disregard a certain amount of proteinuria in those patients exhibiting a "low reserve kidney", provided always that it is not increasing or accompanied by other unfavourable developments.

The basic principles of the "dehydration treatment" of eclampsia by the rapid intravenous infusion of hypertonic (30%) solutions of dextrose do not yet appear to be fully appreciated. The judicious use of this form of therapy has been authoritatively described as "the greatest advance in obstetrics in the last decade". Yet in this volume it is only mentioned in passing and then offered as an alternative to a continuous infusion of a 5% solution—a matter of detail, it might appear, but one involving a fundamental contradiction in the underlying physiology.

Most of the sections, however, are well presented. There is a thoughtful chapter on the psychoses of pregnancy and the puerperium and an excellent account of the anemias of pregnancy. The management of abortions is always a fertile field for controversy, but many would doubt the wisdom of relying on the gloved finger and a pair of ovum forceps effectively to empty the uterus after a "clean" incomplete abortion. "A curette should not be used", it is stated. Why not? Perhaps if a curette was properly used it would not be necessary for the authors to add: "Involution is frequently slow, and the patient should be kept in bed for ten days." By contrast, the advice offered for the management of the septic abortion would meet with general approval.

As there is certain to be a large demand for this book, especially by students, a reprint may be expected within a year or so. It is to be hoped therefore that the authors will find time to correct a number of typographical errors which tend to mar an otherwise attractively presented text-book: "intramuscular" (page 188), "plamenta praevia" (page 382), "sulphanilimide" (page 190).

#### Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"A Textbook of Histology", by Alexander A. Maximow and William Bloom; Fifth Edition; 1948. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 10<sup>1</sup>/<sub>2</sub>" x 6<sup>1</sup>/<sub>2</sub>", pp. 718, with many illustrations, some of them coloured. Price: 59s. 6d.

Designed to provide students with an adequate description of the minute structure of the human body and the morphological evidences of its functions.

"Gynaecological Histology", by Josephine Barnes, M.A., D.M. (Oxford), M.R.C.P. (London), F.R.C.S. (England), M.R.C.O.G.; 1948. London: Harvey and Blythe, Limited. 8<sup>1</sup>/<sub>2</sub>" x 5", pp. 260, with many illustrations. Price: 30s.

Deals with the histology of the normal and abnormal tissues encountered in gynaecological practice.

"A-B-C's of Sulfonamides and Antibiotic Therapy", by Perrin H. Long, M.D., F.R.C.P.; 1948. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 7" x 4", pp. 248. Price: 24s. 6d.

Deals with the clinical pharmacology, toxicity and methods of administration of antibiotics.

"The 1948 Year Book of Radiology"; Diagnosis—edited by Fred Jenner Hodges, M.D., associate editor, John Floyd Holt, M.D.; Therapeutics—edited by Ira I. Kaplan, M.D., F.A.C.R., associate editor, Sidney Rubenfeld, M.D., F.A.C.R.; 1948. Chicago: The Year Book Publishers Incorporated. 9" x 6", pp. 476, with many illustrations. Price: \$6.50.

One of the "Practical Medicine Series" of Year Books.

"Human Embryology and Morphology", by Sir Arthur Keith; Sixth Edition; 1948. London: Edward Arnold and Company. 8<sup>1</sup>/<sub>2</sub>" x 5<sup>1</sup>/<sub>2</sub>", pp. 708, with illustrations. Price: 40s.

The sixth edition of a book published first in 1902; the subject is dealt with in the light of evolution.

"Juvenile Rheumatism: A Clinical Survey", by G. E. M. Scott, M.B. (Melbourne), L.R.C.P. (Edinburgh), L.R.F.P.S. (Glasgow); 1948. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 8<sup>1</sup>/<sub>2</sub>" x 5<sup>1</sup>/<sub>2</sub>", pp. 176.

A short review of the subject with emphasis on modern trends of thought and recent investigational work.

"Vision and the Eye", by M. H. Pirenne, Dr.Sc. (Liège), Ph.D. (Cantab.) ("Frontiers of Science Series, General Editor, Bernard Lovell, O.B.E., Ph.D., F.Inst.P."); 1948. London: The Pilot Press, Limited. 7" x 5<sup>1</sup>/<sub>2</sub>", pp. 212, with illustrations, some of them coloured. Price: 12s. 6d.

Deals with the visual mechanism and explains how present knowledge has been obtained.

In almost the opening sentences of the document it is admitted that far too much of the criticism of the department which has appeared in the Press during the last few years is true—that most of the older institutions are out of date; that insufficient money for maintenance, equipment and advancement has been provided and that this parsimony is of many years' standing. In all of the numerous references in this journal to the mental hospitals problem it has been clear that official (in other words ministerial and governmental) parsimony and general apathy have been the *fons et origo malorum*. How long standing and serious this has been the present report shows. In an opening section on the history of the department the committee points out that in 1886 a Royal Commission was set up to consider the insane and inebriates. The foremost recommendation of this commission was for the formation of a board or commission to take complete control of the department "which should be removed from the Public Service Act and have extensive power subject only to Parliament". The commission also stated: "We have five large establishments and they are too much like gaols". The present committee adds, apparently more in sorrow than in anger: "This holds today." When the committee entered upon its inquiry it expected to find that the Department of Mental Hygiene would have powers and authority to do its work in its own way, subject always to the limits on expenditure set by Parliament in the annual *Appropriation Act*. It found that the department had to get its buildings, plant and repairs from the Public Works Department, its staff from the Public Service Board and its stores from the Tender Board. The Tender Board, we are told, is reasonably quick with its work and readily modifies its system to meet pressing needs. On the other hand the Public Works Department and the Public Service Board are "almost unbearably leisurely in their ways, and appear to be unable to alter their routine to meet urgent demands". The Department of Mental Hygiene is "forced to wait upon their convenience even in the face of chaos threatening its own affairs" and the committee marvels that the department has been able to carry on for so long without a serious breakdown. Here we see signs of anger rather than sorrow in the committee's attitude, for we are told that the well-being of the mentally sick should not have to wait upon the pleasure of two departments which are far removed from them and are only remotely interested in their welfare. The recommendation is that a board of three commissioners should be created, incorporated by Act of Parliament, to take over administration of the department. It is suggested that the first of the commissioners should be a medical practitioner, a competent and practical psychiatrist; the second commissioner should be a man skilled in finance and experienced in the management of hospitals; the third commissioner should have a wide knowledge of modern hospital architectural and engineering practice. It is this fundamental and far-reaching suggestion which has been embodied in the new bill. According to the terms of the bill the "Authority" shall consist of three members appointed by the Governor in Council of whom (a) one shall be a medical practitioner and an expert in psychiatry who shall be appointed as chairman of the Authority; and (b) one shall be a person with administrative experience. The members of the Authority are not to be allowed to

## The Medical Journal of Australia

SATURDAY, DECEMBER 18, 1948.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

### THE VICTORIAN DEPARTMENT OF MENTAL HYGIENE.

THE Government of the State of Victoria has introduced into the Legislative Assembly a "Bill to make provision with respect to the Constitution and Functions of a Mental Hygiene Authority and for other purposes". The "short title" of the proposed act is the *Mental Hygiene Authority Act, 1948*; it is to be read and construed as one with the *Mental Hygiene Act, 1928*. This action of the Government follows reports of the Director of Mental Hygiene, extending over several years, in which ministerial attention was drawn to the shocking state of affairs which existed. These reports have been mentioned from time to time in this journal. Such a reference will be found in the issue of March, 1947. Attention was then drawn to the report by Dr. J. Catarinich for the year ended December 31, 1945, and to the doleful and depressing state of affairs described by him. Dr. Catarinich used strong language. He remarked that certain wards in mental hospitals were "gravely overcrowded", that in the matter of staff "deterioration" had taken place and that in consequence of this the abandonment of certain forms of treatment was "disastrous". The Government did at length take notice, and this is shown by the publication of a report by the "Mental Hospitals Inquiry Committee", "On the Department of Mental Hygiene, its Hospitals, and its Administration". The report is addressed to the Honourable the Minister for Health by Dr. W. Ernest Jones (chairman), G. F. Schellenberger, P. O. Spicer, Will H. Clay and M. J. Killeen; F. B. Howell was the secretary. The committee does not quote its terms of reference, but states that it was constituted "to report on the Mental Hospitals of Victoria"; it gives no dates either for its constitution or for the presentation of the report. The document, however, is far reaching, shows evidence of discernment and does not mince matters. The bill that is before Parliament will best be understood if reference is made to this report.

engage directly or indirectly in any paid employment outside the duties of their respective offices. The functions of the Authority, according to the bill, are to be as follows:

(a) to make provision for the improvement of the treatment and measures for the prevention of mental defect, mental disorder and mental disease;

(b) to provide for the carrying out of research and investigations in relation to the causation and treatment of mental defect disorder and disease;

(c) to arrange for the inspection and control of institutions licensed as private mental homes;

(d) to furnish recommendations and reports to the Minister upon matters affecting the accommodation maintenance treatment and welfare of persons suffering from any mental defect disorder or disease;

(e) to publish reports information and advice concerning mental defect disorder and disease;

(f) with the approval of the Minister (i) to provide places for the accommodation maintenance treatment and welfare of persons suffering from any mental defect disorder or disease; (ii) to establish out-patient clinics for advice and treatment in relation to mental disorder; hostels for the welfare and rehabilitation of patients who are or have been under the control of the Mental Hygiene Branch; clinics as a preventive measure to deal with retarded defective and problem children;

(g) to ensure that mental hospitals receiving houses clinics hostels and other places provided by the State for the purposes of the Mental Hygiene Acts and the Mental Deficiency Act, 1939, are kept in a proper state of maintenance and repair;

(h) to submit recommendations to the Minister concerning proposed amendments to the Mental Hygiene Acts and regulations thereunder relating to the treatment and welfare of patients;

(i) to carry out any powers and duties conferred or imposed upon the Authority by or under the Mental Hygiene Acts.

It will be clear that the functions of this new authority are to cover a wide range. In framing this bill the Government has evidently accepted the view of the Mental Hospitals Inquiry Committee and has determined to do something of the kind that was recommended first in 1886. But let us look at some of the other matters mentioned in the report of the committee of inquiry. In addition to the question of administration there are two of enormous magnitude-buildings and staff shortages. These present hurdles before which the most gallant departmental heads would quail. In regard to further matters mentioned in the report, it is not clear to what extent they are the result of basal deficiencies or mal-adjustments. Some of them are stark realities that may arouse a complacent public to demand action. The diet, we are told, is monotonous and in most cases unappetizingly served; it is deficient in vitamins and essential minerals. "Lumps of bread—some two inches thick—with tea poured over them form the evening meal in many cases." The dining rooms are bare and chilly and the crockery appalling and depressive. Tea matures too long; it is discoloured and in many cases over an hour old. Some kitchens are hopelessly inadequate and have been unpainted for over 25 years. At present some patients do not get a hot meal. During the past few years there has been a rise in the death rate due to pulmonary disease and the committee thinks that the understaffing, overcrowding and lack of equipment may have been contributory factors. There are so few sheets that when a daily change is necessary the patients have to wash their own sheets and hang them out to dry; the result is that the sheets do not always become dry and damp sheets are put back on the beds. Another "aggravating factor" is described—the lack

of lockers in which patients could place their clothes at night. Patients undress in cold draughty corridors and place their clothes on the passage floor before making their way to their beds in the adjoining rooms. In the matter of clothing, the committee reports that the patients are largely untidy and unkempt and that clothing and footwear are frequently unsuitable. A paragraph of the section on heating, bathing and sanitary conditions is worthy of being reproduced in full:

Generally speaking, the hospitals are reasonably clean and hygienic; but it is considered that:

1. Many of the sanitary spurs attached to wards could be renovated upon the lines of the new boys' block at Janefield.

2. All sleeping dormitories should have similar sanitary conveniences as have been incorporated in the new male blocks at Ballarat.

3. Floors of bathrooms and showers should not only be lower than the floors of the main ward, but should slope to the rear where adequate provision should be made for the easy escape of excess water and frequently its allied filthy waste.

4. The floors of the laundries were also noticed to be subject to flooding from the washing machines. The drainage of these should be promptly attended to and adequate provision made for future extensions.

5. Uncovered drains are undesirable and provision should be made for adequate under-surface drainage.

6. Insufficient attention is paid to the very desirable practice of fly-proofing wards.

7. The use of modern chemicals for cleaning would do away with the frequent unpleasant smell met with in many of the wards.

8. The use of one or two shaving brushes to [sic] many patients is definitely unhygienic and similar instances apply in other like cases.

We cannot refrain from wondering why the committee walks so warily here and uses the words "reasonably clean and hygienic" in the face of all that is implied in the eight "butts". This calls to mind the British soldier in France in the first world war, who, having sustained an extensive lacerated wound of the buttock, wrote to his wife: "This is to let you know that I am in the pink, except that I have been wounded in the buttock." We should like to think that the Victorian Department of Mental Hygiene was "in the pink". There are important sections on inspection and the investigation of complaints and also on the medical staff. Although the medical staff has its statutory numbers it is stated that the strength of the staff is quite insufficient for the patients to be given all the supervision and medical treatment that are necessary.

There is a danger that the public may think that the passing of this bill and its subsequent enactment will bring about a kind of mental hospital millennium in Victoria. Such an idea would be more than foolish. It is not clear, from the functions of the Authority as stated in the bill, whether the dead weight of the Public Works Department and the Public Service Board are to be removed—whether only part of what was thought necessary in 1886 has been thought necessary now. Actually it looks as though the labours of one man have been distributed among three, that they will still have to carry dead weights and that they will still have to secure ministerial "approval" for important matters. A great deal of lee-way has to be made up before any progress can take place and this will not be possible if official parsimony and general apathy are to continue.

## Current Comment.

### PROBLEMS OF BRUCELLOSIS.

THE widespread nature of human brucellosis has only been clearly recognized of comparatively recent years. The problem of Malta fever was clarified by its well-known relationship with the drinking of goat's milk, but even today there must be many who have some memory of this piece of epidemiology who yet do not realize the damage still done by the disease. For example, it may be surprising to learn that the cost of brucellosis to the cattle industry of the United States of America is nearly one hundred million dollars annually. This fact is quoted by Wesley W. Spink in an article on the pathogenesis of the disease with special reference to its prevention and treatment in man.<sup>1</sup> The reservoir of this infection is in domestic animals, which is in itself important. Goats, cattle and pigs are all liable to it, and as is well known, the milk supply of many large centres is from time to time a source of human infection. Unsterilized milk is still the most important link between man and infected animals, though human disease may follow contact with the tissues of pigs carrying the infection. The points of most interest in the present instance concern the pathogenesis of the disease, and the bearing of this on immunity and treatment. Spink and his associates have been interested in the tissue reactions. Spink points out that understanding of the disease requires a comprehension of some of its peculiarities. The reticuloendothelial system bears the brunt of the attack, and the spleen, liver, bone marrow and lymph nodes are invaded. More significant than this is the capacity of the Brucella to become localized and to proliferate within the cells which have no phagocytic power. The author points out the advantage thus gained by the parasite over the host. He has shown that a constant cellular pattern may be demonstrated in the tissues thus invaded, some of which are accessible to biopsy. Examination of bone marrow, lymph nodes and liver has been made on ambulatory patients, and the outstanding feature has been found to take the form of a multiplication of epithelioid cells, with occasionally accompanying giant cells, the usual lymphocytes and plasma cells, and sometimes eosinophilic cells. This type of reaction is, of course, not unique, but already familiar in tuberculosis and sarcoidosis. Cultures from the bone marrow may sometimes yield the Brucella when no culture is obtainable from the blood. It is of interest that osseous lesions are not uncommon in certain types of brucellosis. When we link with these observations some of the peculiarities of the immune responses in this disease, we can more readily see why it is often difficult of diagnosis and long in duration. The most striking feature of the immune reaction is the production of hypersensitivity of the tissues to a Brucella antigen. This, as Spink observes, can only be satisfactorily overcome by eradicating the cause from the body, a procedure that has tried the resources of the physician to the utmost. Some other curious features of the immunity reactions are the apparently greater resistance of young children, contrasted with adults, the predilection of Brucella for embryonic tissue in animals, and the probable existence of natural immunity in some individuals. It has been a cause of wonder for a long time that on the one hand human resistance in the bulk seems to be so high, for the opportunities of contracting the disease are free enough, and that on the other hand the clinical disease is often so prolonged.

Treatment fortunately promises to be much more prompt and successful than in the past. A combination of streptomycin and sulphadiazine has given much improved results in the University of Minnesota hospitals during the past ten years, checked by tests of these two compounds in the fertilized hen's egg. It appears that the two drugs are synergistic in effect. In one case a complicating subacute bacterial endocarditis yielded to this treatment. It was rather surprising that excellent results were also obtained

in chronic infections, lasting three months and more, though slightly larger doses of streptomycin were required. The use of these methods, of course, demands careful study of the patients, and regulated dosage. It is to be noted that although no instance of complicating toxic effects had been seen up to the time of preparation of the article, the author has since observed vestibular dysfunction in a patient receiving two grammes of streptomycin daily for two weeks.

Finally the prevention of brucellosis stands out as the most important measure of control. The problems involved in the eradication of the infection from the animal reservoir are immense, but the prevention of the human disease is more easily possible. Immunization has not been found practical or effective, but at least milk can be made safe. If all milk destined for human consumption was pasteurized, and also milk used for production of butter and cheese, human brucellosis would disappear.

### POLIOMYELITIS AND TONSILLECTOMY.

In the issue of October 31, 1942, attention was directed in these columns to the risks attending tonsillectomy during an epidemic of poliomyelitis. A good deal has been published on the subject since then, mostly confirmatory, but in some instances conflicting. In view of the importance of the question we should like to draw attention to a recent careful summing-up of the present position by J. A. Glover.<sup>2</sup> This article was provoked by criticism of a memorandum on anterior poliomyelitis by medical officers to the Ministry of Health, which was published last year.<sup>3</sup> In this it was stated that there was overwhelming evidence that a recent tonsillectomy increased the risk of a child's contracting poliomyelitis, particularly of the bulbar type, and that prevalence of poliomyelitis in an area should therefore be an indication for the postponement of operations on the nose and throat whenever possible. Glover states that complaints have been made that, in consequence of this advice, waiting lists are growing, and that the health of the waiting children is deteriorating and their development being delayed. In a brief but comprehensive summary he produces evidence, for which the term "overwhelming" is quite appropriate, of the increased incidence of bulbar poliomyelitis in patients shortly after tonsillectomy. In reply to those who may emphasize the rarity of cases in which poliomyelitis followed recent tonsillectomy in the British epidemic of 1947, he suggests that this may have been in large measure due to the fact that British medical opinion was alive to the danger through knowledge of American experience and previous warnings; the criticized memorandum was itself issued in sufficient time to have minimized the number of tonsillectomies at the peak periods of the epidemic. To those who say that the risk of postponing tonsillectomy outweighs the risk that the operation may open a way for the more fatal form of poliomyelitis, Glover speaks strongly. He points out that, in London, despite the greatly lessened number of tonsillectomies in 1947, the numbers of children with *otitis media* or enlarged cervical glands referred for treatment in that year were less than in 1946, and equal to the lowest ever recorded. He quotes Epstein's contention in a paper in 1937 that tonsillectomy has better results when carried out at ages later than those at which the peak of the incidence of tonsillectomy usually occurs, and other authoritative support for a conservative attitude towards the operation. Tonsillectomy has its place, but the need for it is rarely urgent. Cases of poliomyelitis and polioencephalitis are still being reported in England, and Glover urges that the only justifiable course is to postpone tonsillectomy, wherever possible, until the risk of an autumn rerudescence of poliomyelitis is past. Fortunately we are at present in happier state in Australia, but we do well to bear this advice in mind against the day when it may be relevant.

<sup>1</sup> Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service: Directed by the Medical Research Council, July, 1948.

<sup>2</sup> British Medical Journal, July 26, 1947.

## Abstracts from Medical Literature.

### OPHTHALMOLOGY.

#### Trachomatous Pannus and Ariboflavinosis.

J. LANDAU AND H. J. STERN (*American Journal of Ophthalmology*, August, 1948) report the case of a woman, aged forty-five years, who had had trachoma as a child and who presented with photophobia and burning in both eyes. The cornea presented an acute trachomatous pannus and in addition a typical ariboflavinotic corneal vascularization. She was given five milligrammes of riboflavin twice daily by mouth, and at the end of two weeks subjective symptoms had vanished and the pannus assumed its usual inactive state. In other cases the author used the total vitamin B complex because ariboflavinosis must be regarded as an expression of relative deficiency in the other constituents of the vitamin B complex as well.

#### Tobacco Amblyopia.

L. C. SCHEPENS (*Transactions of the Ophthalmological Society of the United Kingdom*, 1946) contributed to the symposium on tobacco amblyopia. His observations were made in Belgium during the war years. Tobacco amblyopia occurs when the intake of toxic substances resulting from tobacco consumption exceeds the capacity of the liver to neutralize these poisons. In classical cases this occurs only in patients aged over fifty-five years who are heavy smokers. In Belgium the author observed the condition in young patients who were moderate smokers but who were undernourished. The author states that the onset in these people was due to malnutrition and especially to lack of fats, which impoverishes the liver in glycogen. However, in both types the poison seems to act primarily on the retina itself and not on the optic nerve, the foci of degeneration occurring in the nerve at a later stage.

#### The Prognosis of Retrobulbar Neuritis.

W. F. TISSINGTON TATLOW (*The British Journal of Ophthalmology*, August, 1948) deals with the ultimate prognosis of retrobulbar neuritis. Thirty patients were examined from ten to forty-seven years after the diagnosis was made. Of these, twelve were found to have abnormal neurological signs and one was bedridden with disseminated sclerosis. The outlook with regard to visual recovery is good, for in only one out of 25 unilateral cases was the patient blind in the affected eye. One patient had developed cerebral syphilis. This patient had not been fully investigated originally. The author holds that all patients should have a Wassermann examination of the blood and also a full cerebro-spinal fluid examination to exclude syphilis.

#### Amblyopia.

D. CAMPBELL (*Transactions of the Ophthalmological Society of the United Kingdom*, 1946) discusses amblyopia and classifies it into two types—primary amblyopia, which includes congenital and suppressive amblyopia, and secondary amblyopia, which includes toxic neurological, psychological and

nutritional disease. Primary amblyopia is defined as poor visual acuity in all cases in early childhood, which cannot be corrected by optical means. Congenital amblyopia is that found in association with structural defects of the globe. Suppressive amblyopia is lack of visual function in an apparently normal eye. The author states that in most cases suppressive amblyopia is associated with strabismus and occurs in one eye only. On clinical evidence the primary factor in its onset is an error of refraction, particularly anisometropia and bilateral hyperopia. She regards the processes as the same in congenital amblyopia, but here they are masked by anatomical defects. An encephalogram of a patient with an amblyopic divergent eye was normal, suggesting that nervous function is unchanged apart from the loss of pattern vision.

#### Fat Embolization Involving the Human Eye.

MILH. FRITZ AND MICHAEL J. HOGAN (*American Journal of Ophthalmology*, May, 1948) made a complete study of the eye of a soldier who had died from generalized fat embolization and pneumonia. An examination of the fundi prior to death revealed round oval white subretinal exudates completely surrounding both maculae and following the course of the main retinal vessels. There were no hemorrhages. The macula of the right eye appeared cherry red. Microscopic examination revealed fat emboli in several small capillaries of the ciliary body, and in the choroid several vessels just beneath the choriocapillaris contained fat emboli. In the retina the following changes were noticed: scattered fine hemorrhages in the nerve fibre and ganglion cell layers, focal areas of oedema, hemorrhage, chronic inflammation and secondary degeneration in the inner portion, and around these areas the terminal arterioles and capillaries contained fat emboli. Scattered capillaries in the nerve fibre, ganglion cell and inner plexiform layers throughout the retina showed fat emboli, and a number of vessels in the optic nerve contained fat emboli.

#### Surgical Treatment of Pterygia followed by X-Ray Therapy to Prevent Recurrence.

H. L. HILGARTNER, R. T. WILSON AND J. O. WILSON (*American Journal of Ophthalmology*, June, 1948) divide pterygia into two types: (i) small, slow-growing avascular pterygia with a flat white-grey head; (ii) the highly vascular, thick, inflamed growth with an elevated head and a flat greyish section on the cornea which precedes the head. They regard this type as likely to recur after surgery and consider it the ideal type for X-ray therapy. The purpose of the X-ray therapy is to help prevent recurrence of growth of the pterygia. The effect is produced by the inhibiting action of X rays upon young connective tissue, the epithelial cells and the blood vessels. These pterygia are treated soon after the operation is performed, while the tissues are in an active and reparative phase. Treatment is begun on the fifth day after operation. The size and shape of the pterygia are measured and a portal is cut out of the lead foil which will closely fit the lesion. The eye is anaesthetized and the lid is held open with a speculum. The lead foil is

placed over the eye and the beam directed through the portal. The beam is angulated so that the centre of the beam does not go through the centre of the orbit. Unfiltered X rays produced at a voltage of 70 kilovolts are used at a distance of nine inches. The exposure time is short, never more than two minutes. The treatments are repeated at three to five day intervals and the treatments are given in a period of two to three weeks.

### OTO-RHINO-LARYNGOLOGY.

#### Laryngeal Papillomata in Childhood.

H. ZALIN (*The Journal of Laryngology and Otology*, October, 1948) states that papillomatosis of the larynx occurs in infancy and childhood, and is somewhat uncommon. The aims of treatment are the following: (i) relief of urgent symptoms, particularly asphyxia; (ii) clearance of the laryngeal thoroughfare as adequately and frequently as necessary; (iii) avoidance of local injury and its sequelae — dysphonia from cordal damage, laryngeal stenosis from soft tissue scarring or perichondritis. The author mentions the methods of treatment in use, and refers particularly to a new method of treatment by the local application of oestrogenic hormone, the rationale of which is as follows. (i) Gonococcal vaginitis, intractable in children, ceases at puberty; papillomatosis of the larynx behaves similarly. (ii) Vaginal epithelium is stratified squamous tissue; the epithelium of the vocal cords, aryepiglottic folds and epiglottis is similar. (iii) Changes in the character of the epithelium of both areas occur dramatically at puberty. (iv) The local application of oestrogen to the vagina in the prepubescent phase results in temporary pubertal changes and cures gonococcal vaginitis. An attempt at producing a similar effect in laryngeal papillomatosis by the same method was indicated. Gonococcal vaginitis and laryngeal papilloma seem basically separate, the first being an infection, the second a neoplasm. Nevertheless there is evidence that recurrence and implantation of laryngeal papillomata are by means of a filterable virus. When spontaneous recession occurs before puberty, an attenuation of the virus or the development of antibody immunity is possible. When puberty is responsible for cessation of activity, it is likely that mature epithelium presents a barrier to virus activity not present in immature tissue. The author describes his manner of using the new treatment in two cases. He believes it to show considerable promise.

#### Cavernous Haemangioma of the Frontal Bone.

G. KELEMEN AND E. M. HOLMES (*The Journal of Laryngology and Otology*, September, 1948) record a case of cavernous angioma of the frontal bone, which was removed by operation; a plastic repair was carried out. The tumour was of traumatic origin. Histological examination revealed, in the centre, destruction of the bone by the vessels of the spongiosa, which formed first dense conglomerates and later by confluence large sinuses. In the periosteal region reactive osteogenesis produced new bone by reversion to

the mechanism of intramembranous ossification. The first impulse towards exuberant growth may have been imparted to the endothelial cells of the vascular walls, while material for repair was furnished by the remnants of the periosteum. Reaction to the traumatic impulse resulted in tumoral growth at the site of the primary centre of ossification. Attempts at reconstruction by reversion to the prenatal mechanism of intramembranous ossification produced the characteristic radiological picture of delicate parallel trabeculae.

#### Penicillin in Acute Suppurative Otitis Media.

A. YOUNG AND I. SIMSON HALL (*The Journal of Laryngology and Otology*, September, 1948) discuss the treatment of acute suppurative otitis media with penicillin, with special reference to long-term hearing, on the basis of a series of 115 cases from early in 1946 to June, 1948. In all but six cases a dry, healed ear was obtained by penicillin alone; in these six a simple mastoid operation was required, and in one removal of adenoids was also needed. Infection recurred in ten cases, more than once in two cases; signs of meningitis appeared in one of these two. In eight cases some hearing defect remained; in only one was it severe, and in the rest it was slight. The loss of hearing for the upper tones was greater than for the low tones, and it appeared to be more slowly and gradually recovered and not quite so completely; this did not apply to all cases. The authors refer to the condemnation of the indiscriminate use of sulphonamides, and state that they believe it to be a matter of urgency to utter the same warning about penicillin. Although they think that in their cases the advantage lies with penicillin over the sulphonamides, yet the latter seem to hold their own as far as the final recovery of hearing is concerned. They suggest that the rational procedure for the general practitioner to adopt is to rely chiefly on the sulphonamides, on the grounds that the proper administration of sulphonamides is to be preferred to the inefficient or irregular use of penicillin. Proper penicillin treatment requires the admission of the patient to hospital. It is believed that improper use of penicillin is responsible for the rapid increase of penicillin-resistant strains of various organisms, and a recent paper implies that the usefulness of penicillin is diminishing. Finally it is stressed that penicillin and the sulphonamides are adjuncts to surgery, not substitutes for it, and that the observations made apply only to early acute otitis media.

#### The Importance of the Uvula.

G. S. RICHARDSON AND E. MARKEY PULLEN (*Archives of Otolaryngology*, April, 1948) present the results of a series of observations on the functions and importance of the uvula. They summarize the functions of the uvula as follows. (i) It massages and moistens the cellular structure of the posterior pharyngeal wall. (ii) It aids in the removal of material from the posterior pharyngeal wall and in the passage of this material downwards to the hypopharynx and the base of the tongue. (iii) It serves as a transfer organ to bridge the deficiency between the velum and the posterior pharyngeal wall as secretion moves from the mid-

line above and anteriorly to the mid-line posteriorly. (iv) It is a valuable aid in the prevention of middle ear disease in children. (v) By participating in the preservation of normal pharyngeal arches, it prevents *pharyngitis sicca* with subsequent drying of the Eustachian orifices, which might be expected in the presence of a high arch on one side or of a fibrous straight line contracture. (vi) In many instances it is the warning flag of the pharynx. (vii) It prevents *rhinolalia aperta* in successful tonsillectomy, and is a valuable adjunct to voice control, possibly as a mid-line buttress, particularly in singers. (viii) By deviating to one or the other side, the uvula may indicate a weakness of the accessory nerve on the opposite side. The authors conclude that the uvula is a valuable means of preserving naso-pharyngeal health and detecting change. It should not be damaged needlessly, nor should it be subjected to operation unless a definite symptom-complex traceable to it is found. More must be known about the Eustachian tube and its naso-pharyngeal orifice before a uvula is willingly sacrificed or classed as a vestigial remnant. To ignore an edematous uvula is as negligent as to ignore chronic hoarseness without ascertaining the state of the vocal cords by means of laryngoscopy.

#### MEDICINE.

##### Heart Failure.

A. A. NEWMAN AND H. J. STEWART (*Annals of Internal Medicine*, May, 1948) describe their experience with the Schemm régime in the treatment of heart failure, Schemm having advocated a very high intake of fluid daily and a diet of low sodium content yielding a neutral or acid ash residue. Nine patients with congestive heart failure were observed prior to undergoing the Schemm treatment. When their condition was stable they were put on 4000 to 5000 millilitres of fluid daily plus the diet Schemm recommended. As a result the authors consider that the treatment is useless. The patients did not respond, there was no diuresis, and in six patients fluid accumulations increased. The patients did not like the Schemm treatment, which included deprivation of salt. Seven out of the nine patients improved much more on limited fluids, three grains of salt a day and frequent doses of "Mercupurin".

##### Subarachnoid Haemorrhage.

W. S. HAWLY (*The Journal of the American Medical Association*, February 21, 1948) reports 130 cases of spontaneous subarachnoid haemorrhage, 75 in women and 55 in men. Ages varied from seven months to eighty years. Apart from cases without external trauma and without obvious cause ruptured aneurysm was much the most frequent cause. Of 47 cases in which the cause was proved, 44 were due to ruptured aneurysm of the circle of Willis. If all cases of subarachnoid haemorrhage are included a much more diverse picture is found. External trauma caused half of a series of 149 cases reviewed by Conville; haemorrhagic diseases and injuries of the newborn, arteriosclerosis and hypertension, cerebral neoplasms, blood dyscrasias and cerebral haemorrhages were also

recorded. In 52% of the cases recorded by Hawly concomitant intracerebral haematomata were found at the same time as the subarachnoid haemorrhage. Evidence of major cerebral damage and increasing intracranial pressure should lead to suspicion of an intracranial haematoma. The frontal lobe was involved in seventeen cases and the temporal lobe in five cases. In subarachnoid haemorrhage the symptoms recorded here were sudden onset of pain in the head or unconsciousness in the large majority; paralysis, convulsions and giddiness were rare at onset. Fifty-one per cent of all patients died in hospital, 48% survived, and of these only 21 patients are completely recovered. Various neurological handicaps persist in the remainder. The physical signs of subarachnoid haemorrhage included stiff neck and Kernig's sign, sluggish pupils, papilloedema, ocular and facial palsies, hemiplegia, monoplegia and mental disturbance, the latter being very frequent.

#### Sympathetic Ganglionectomy for Asthma.

D. CARR AND H. CHANDLER (*The Journal of Thoracic Surgery*, February, 1948) have performed bilateral excision of several of the thoracic sympathetic ganglia in five patients who suffered from asthma which was very refractory to treatment. The results are described as beneficial in three of the patients, who have been observed for as long as ten years after the operation. The operation is based on the contention that the thoracic sympathetic trunks and ganglia contain "constrictor" fibres which influence the bronchial mucous membrane and glands.

#### Typhoid Fever Treated with Chloromycetin.

T. E. WOODWARD *et alii* (*Annals of Internal Medicine*, July, 1948) have treated ten patients suffering from typhoid fever with chloromycetin, a new antibiotic which is prepared from a species of Streptomyces and which has already been used successfully in the treatment of epidemic typhus and scrub typhus. Evidence of improved general condition and lessened intoxication was usually apparent within twenty-four hours of the administration of the chloromycetin and increasingly thereafter. The temperature reached permanent normal levels in an average time of three and a half days. Preparation of cultures from the blood even a few hours after the beginning of the treatment failed to grow *Enterobacter typhosa*. Two patients relapsed with bacteremia ten and sixteen days respectively after becoming afebrile, but the recurrent infection responded promptly to a second course of chloromycetin. One patient suffered an intestinal perforation and one a serious hemorrhage.

#### Supraventricular Tachycardia Treated with "Neostigmine".

S. WALDMAN AND L. PELNER (*Annals of Internal Medicine*, July, 1948) report five cases of supraventricular tachycardia (sinus tachycardia and paroxysmal auricular and nodal tachycardia) successfully treated with "Neostigmine". This drug slows impulse-formation at the sinu-atrial node through stimulation of the vagus. In paroxysmal tachycardia it may induce incomplete heart block of varying degree.

## Special Article.

### OVERCROWDING THE MEDICAL PROFESSION IN NEW SOUTH WALES.

ONE cannot but view with some alarm and apprehension the enormous influx of students to the Faculty of Medicine in the University of Sydney over the last twenty years, culminating in 1948 with an enrolment of 1921 medical students as against 385 in 1929.

The following table, giving averages over five-year periods, illustrates what is happening (Table I):

TABLE I.

Five Year Periods.	Average Enrolments per Annum.	Average Graduands per Annum.
1929 to 1933	487	44
1934 to 1938	767	73
1939 to 1943	956	154
1944 to 1948	1505	150

With the shortened course in the war years the number of graduands rose sharply, and although it has fallen slightly in the last period, it must rise again owing to the huge enrolment of students, and may be expected to reach a yearly average of about 235 for the years 1949 to 1953.

Although the average enrolments for the last five-year period is 1505, the actual figures for the last three years are as follows: 1946, 1602; 1947, 1872; 1948, 1921. It is expected and hoped that the peak of enrolments has now passed, as these last three years have absorbed the majority of war service students coming in under the rehabilitation scheme; but one can only wait and see.

The following figures are official, except for 1948 graduands, which is an estimate (Table II):

TABLE II.

Year.	First Year.	Total.	Graduands.
1939	163	867	210
1940	194	933	115
1941	249	1015	138
1942	238	1011	155
1943	170	957	149
1944	189	972	184
1945	339	1150	151
1946	648	1602	152
1947	600	1872	164
1948	465	1921	150

The actual numbers of medical students in 1948 have been supplied by the Dean of the Faculty of Medicine, Professor Harold Dew, and are as follows: (i) first year, 465; this includes a good number repeating the year from last year; (ii) second year, 437; this also includes a good number repeating the year; (iii) third year, 484; these students sat for examination in September; (iv) fourth year, 254; (v) fifth year, 174; (vi) sixth year, 157; of these, 115 passed the final examination, and it is expected that about 25 will pass the deferred examination. Professor Dew points out that students sometimes enrol but do not pay fees, others drop out during the year, and others return after some years to commence again, so that any figures other than those referring to students actually entering for the examinations will always show an error of from 5% to 10%.

The teaching of these large numbers has proved a formidable task, and with the large numbers in years now entering the clinical side of training the resources of the teaching hospitals will be strained to the uttermost, particularly in the hospital wards and with regard to practical midwifery.

#### Registered Medical Practitioners in New South Wales.

The Secretary of the Medical Board of New South Wales, Mr. G. Fleming, has supplied figures referring to registered medical practitioners as at November 11, 1948, and also a dissection of the location of those registered according to the addresses given by them. The grand total was 4698, and it is made up as follows: (i) city, 592; (ii) suburbs, 1769;

(iii) country, 924. The total subsisting registrations in New South Wales number 2285. In addition to these, the following should be noted: (i) the services, 77; (ii) Queensland, 416; (iii) Victoria, 286; (iv) South Australia, 59; (v) Western Australia, 58; (vi) Tasmania, 68; (vii) Australian Capital Territory, 24; (viii) Northern Territory, 2. Thus the total in other States *et cetera* is 998. Outside Australia, the distribution is as follows: (i) New Zealand, 50; (ii) Great Britain, 299 (a large number doing post-graduate work); (iii) British Empire, 50; (iv) foreign countries, 21; (v) unknown, 3. The total overseas is 423.

The grand total on the register at November 11, 1948, was 4698.

A proportion of those on the register have retired from active practice; of these it is not possible to secure figures, but there would not be any significant number in New South Wales.

In addition to graduates from the University of Sydney, an increasing number of graduates are coming to New South Wales from other Australian medical schools, from Great Britain and from foreign countries; the number has averaged 47 over the last three years. A number of foreign doctors have been registered since the war ended, but the position now is difficult for them, owing to the reciprocity clause of the *Medical Practitioners Act, 1938-1939*, of New South Wales. The number of such doctors applying to attend the last three years of the course at the Sydney medical school is increasing rapidly; but there will always be a certain number practising without being registered and thus make inroads in the practice available to registered practitioners.

#### Vital Statistics.

The Government Statistician is unable to supply exact figures about the rise in population *per annum* during the next ten years. He provided the following estimates based on the census figures as at June 30, 1947; but they do not take into consideration gains or losses by immigration or emigration. Consideration has been given to the fact that the expectation of life is rising slowly but steadily from 63.5 years in 1932-1934 for males and from 67.1 years in 1932-1934 for females, as also is the gross reproduction rate.

#### Australia (Census June 30, 1947).

Population .....	7,580,820
Estimated increase 1950 .....	7,656,400
Estimated increase 1955 .....	7,819,000
Estimated increase 1960 .....	7,944,200

#### New South Wales (Census June 30, 1947).

Population .....	2,984,838
Estimated increase 1950 .....	3,022,900
Estimated increase 1955 .....	3,087,100
Estimated increase 1960 .....	3,136,500

Table III, dealing with the population of the major cities and towns in New South Wales, is compiled from the census of June 30, 1947, and the figures concerning medical practitioners refer to those on the New South Wales register at November 11, 1948.

On these figures the average proportion of medical practitioners in these major country centres is one to every 1336 of the population, or approximately 7.4 per 10,000, although in many towns it is much greater; but these towns probably serve a fairly closely populated nearby district—for example, Wagga, Tamworth, Orange *et cetera*. This now leads on to a very important consideration.

#### The Proportion of Doctors to Population.

It used to be thought that ten doctors per 10,000 of population was a fair working average; but in New South Wales for many years, as well as in many foreign countries, the number was about eight per 10,000—that is, one doctor for every 1250 of population. In cities or large towns in New South Wales the proportion would be higher, whereas in areas with scattered population it might be one to 2000 or even more. In 1947 the figure for the United Kingdom was 9.5 per 10,000 and for the United States of America 14.0, whereas in New South Wales for 1948 with an estimated population of 2,997,525 people and 3305 doctors on the register (twenty being allowed from deferred examinations), the figure works out at 11.0, or one doctor for every 907 of population.

For the next ten years the Sydney medical school should average 200 graduates per year—that is, 2000 young doctors. In addition there should be an average of 48 doctors coming into New South Wales each year from outside schools, or 480 for the period, making a total of 2480 new medical men registered in the ten years. The population can be estimated at 3,116,740 in 1958. The average wastage of medical men

TABLE III.

City or Town.	Population.	Medical Practitioners.				
		Total Number.	In the Town.	At Local Hospital.	At Mental Hospital.	Health Department.
Albury	14,412	14	13	1	—	—
Bathurst	11,871	14	10	3	—	—
Broken Hill	27,054	24	16	8	—	—
Cessnock	13,029	11	9	2	—	—
Dubbo	9,545	8	7	1	—	—
Goulburn	15,991	13	9	3	1	—
Grafton	12,025	15	14	1	—	—
Lismore	15,214	25	23	1	—	1
Lithgow	14,461	9	5	4	—	—
Maitland	19,151	14	10	4	—	—
Greater Newcastle	127,138	54	40	12	1	1
Orange	13,790	21	15	2	4	—
Tamworth	12,071	20	18	2	—	—
Wagga	15,340	28	21	5	—	—
Greater Wollongong	62,060	20	15	5	—	—

on the register is about 50 per annum or 500 for the period. If another twenty registrations are allowed for the supplementary 1948 examination, we can estimate there will be by that time 2000 additions to the register as it stands today, a total of 5285 medical men in New South Wales in 1958; this gives a ratio of one to approximately 590 of population or 16·78 per 10,000 of population. This figure may not be quite so bad as it looks, for no account has been taken of increase in population by immigration, or of medical men retiring but remaining on the register; however, these factors could not make a great difference to what must be gross overcrowding of the medical profession with its attendant malpractice, lowering of standards and other obnoxious features.

#### Optimum Annual Increase in Number of Doctors.

With the extension of public health, repatriation and other social services, it is likely that a greater number of medical men can be absorbed without detriment, and if one takes a figure of 12·5 per 10,000 of population or 1 to 800, this should be a reasonable estimate of requirements over the next ten years.

If the calculation is based on this figure, and if the population in 1950 is estimated at 3,022,900, we shall require 3778 registered medical practitioners, whereas we shall probably have 113 less than this; but from 1951 there will be a surplus each year mounting steadily to 1378 in 1958. In 1955, with an estimated population of 3,087,100, we should have 3859 doctors, but we shall have at least 4840, and our ratio will have risen to 15·6 per 10,000 of population, and as was pointed out above, by 1958 the ratio will be 16·78. This means that our medical school not only will be, but is today enrolling more students than can be usefully or economically employed upon graduation. On the liberal basis of 12·5 doctors per 10,000 of population, we could absorb medical men as follows (Table IV):

TABLE IV.

Year.	Estimated Population.	Doctors Required for 1:800 People.	Probable Registration.	New Graduates.	Balance.
1948	2,997,525	3,747	3,805	150	-442
1949	3,010,212	3,763	3,465	160	-298
1950	3,022,900	3,778	3,665	200	-113
1951	3,035,589	3,794	3,960	305	+166
1952	3,048,276	3,810	4,240	230	+430
1953	3,061,420	3,826	4,510	270	+684
1954	3,074,260	3,842	4,680	170	+838
1955	3,087,100	3,859	4,840	160	+981
1956	3,099,980	3,875	4,995	155	+1120
1957	3,106,880	3,891	5,145	150	+1254
1958	3,113,740	3,907	5,285	140	+1378

When the figures for new graduates are assessed, it is found that about 10% fail to complete sixth year even with a deferred examination, and on the present enrolment at the Sydney medical school it was estimated that a minimum of 15% of fifth year students would fall at the sixth year examinations, 20% of fourth year students, 25% of third year students and 40% of first and second year students. These figures are rather drastic, as it is seldom that students retire after the third year; but it was thought necessary to make an estimate well on the low side.

The figures after 1953 will depend largely on the enrolments for first year students from 1949 onwards; but in view of the liberal facilities now provided by a benevolent government and the popular idea that the medical profession provides an easy job in life, it is likely that enrolments will remain at a high figure. Although the estimated number of graduands has been greatly reduced from 1954 onwards, it is thought that the figures are ultra-conservative; yet even so a surplus of 1378 medical men in New South Wales by 1958 is an extremely serious matter to contemplate, and even on the low ratio of 1 to 800 of the population, an increased population of 1,102,400 would be needed to absorb them.

#### What is to Happen?

On the basis of the figures presented, the position regarding absorption of the younger graduates is fairly satisfactory up to 1950, although many of the younger men today are finding the settling-in process enervating and slow, especially those who have spent several years in post-graduate specialization.

It is becoming increasingly difficult to provide hospital appointments for recent graduates, and many will be without this vital period of their training, especially from 1950 onwards. There has been a provision in the *Medical Practitioners Act, 1938-1939*, of New South Wales, that one year's residency at a hospital is essential for registration; but this is suspended each year, and it looks as if it will never be implemented.

Under the present *University and University Colleges Act, 1900-1936*, any student who matriculates must be taken at the University of Sydney if he so desires, and this is generally regarded as a right of citizenship. It takes a year or two to prove to some of the aspirants that they are unsuited to the medical course, and many who do eventually qualify will never be good doctors, as they regard medicine as a trade rather than as a profession.

The University of Sydney is one of the few universities in the English-speaking world which does not limit enrolment to the needs of the country and to the proper teaching capacity of the medical school and its ancillary hospitals. Students of today cannot receive the individual teaching that used to be the case, and in anatomy the paucity of cadavers necessitates unwieldy numbers of students to each one available; thus familiarization with anatomical detail is almost impossible, whilst operative surgery classes no longer exist. The out-patient departments and wards of the teaching hospitals are overcrowded, and students cannot get the practice and contact necessary to acquire clinical acumen, but have to rely largely on lectures, demonstrations and text-books.

The estimated population increase each year should absorb 16 doctors; retirements and deaths in the medical profession would allow for the placing of about another 80 per annum. Migration to other States or countries may account for 20, and extension of public health, repatriation and other social services may absorb about 30, so that one may estimate the annual requirements for New South Wales as about 150 new graduates each year. This does not take into account doctors coming in from other States or overseas, which must affect the position somewhat.

Under the circumstances, then, it appears that either the University of Sydney or the New South Wales State Government will find it necessary to fix an annual quota for enrolments; but, of course, with the present trend in legislation, it may not suit government plans to do other

than foster overcrowding in the medical profession. From the point of view of the general public one uneasy feature will be the extreme difficulty of providing resident hospital positions so that graduands may gain practical experience under efficient supervision. The posts available are limited in number and usually go to those who pass well in the examinations, whilst those who "just get through" and really need such experience more than their more brainy colleagues already find it difficult to secure resident positions; thus with increasing numbers of graduates this position must get worse. The qualifying degrees are now bachelor of medicine and bachelor of surgery; but the latter is misleading to the public, as it is possible now only to teach principles of surgery, for operative surgery which used to be taught on the cadaver has now been abandoned, and with numbers so great in the clinical years a student has little chance of assisting at operations. It may be advisable in the near future to make the bachelor of medicine the qualifying degree and to grant the bachelor of surgery only after at least one year's residence at a major hospital.

Encouragement and facilities must be given for post-graduate refresher courses and teaching in the problems confronted in general practice, quite apart from courses suitable for those wishing to specialize or proceed to higher degrees or diplomas. Only if this is done can the danger of deterioration in the quality of services rendered to patients be minimized or avoided.

HUGH R. G. POATE.

## British Medical Association News.

### SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on September 23, 1948, at Sydney Hospital. The meeting took the form of a series of clinical demonstrations by members of the honorary medical and surgical staff of the hospital. Part of this report appeared in the issue of December 11, 1948.

#### **Polycythaemia Treated with Radiophosphorus.**

DR. A. T. NISBET, in conjunction with DR. F. DUVAL and DR. SYLVIA BRAY, showed two patients treated with radioactive phosphorus. Dr. Nisbet pointed out that the distribution of radio-isotopes was controlled in each State by a Therapeutic Trials Committee set up by the National Health and Medical Research Council. Only radioactive phosphorus ( $P^{32}$ ) had so far been distributed, but it was hoped in the future that radioactive iodine and other substances would be available. Dr. Nisbet also said that with regard to priority in treatment *polycythaemia vera* came first. The chronic leucæmias were next on the list, and then, if supplies were available, the acute leucæmias, and reticulosarcoma and lymphosarcoma. In addition it was considered desirable that radioactive phosphorus should be made available for treatment in research. The American committee distributing the isotopes demanded a report on each case at specified intervals. Dr. Nisbet then showed two patients.

The first was a male patient, aged thirty-eight years, who in October, 1948, first attended the Sydney Hospital radiotherapeutic clinic complaining of breathlessness on exertion with palpitation, present for over two years. He had been discharged twelve months previously from the army. The patient said that he was exceedingly tired, with indigestion after meals, frontal headaches and attacks of giddiness. On examination of the patient in 1948, he was seen to have a dull reddish complexion, but no swelling of the feet or ankles. Previous treatments had consisted of numerous venesecti ons. Up to that date the highest erythrocyte count was in September, 1948, when the erythrocytes numbered 6,770,000 per cubic millimetre, the haemoglobin value being 141% (21.2 grammes per centum). Treatment by deep X rays was given from October, 1948, to June, 1949, the last series of treatments being given for subacute mastitis. Large doses were given at various times to the femora, the tibiae and the thoracic cage. During this period the erythrocytes varied in number; at the beginning they reacted noticeably to X-ray irradiation, reaching as low a level as 5,100,000 per cubic millimetre, but within three or four months the number returned to well over 6,000,000 per cubic millimetre, and in September, 1947, the figure of 7,760,000 per cubic millimetre was reached. All this time the leucocyte count remained within normal limits in numbers and in the differential classification. Headaches

became more persistent and more severe, and venesection towards the end of 1947 was found to be the only method of obtaining relief. Permission was then obtained for the Isotope Committee to use some of the imported radioactive phosphorus.

On October 28, 1947, 3.6 millicuries of  $P^{32}$  made up in 20 millilitres of normal saline solution were administered intravenously over a period of fourteen minutes. The patient's pulse rate during the administration remained at 80 per minute, and the only untoward signs were a few missed beats, which quickly disappeared. The patient was discharged from hospital after twenty-four hours. During the first two months after treatment there was no diminution in the number of erythrocytes—in fact, they rose from 6,400,000 per cubic millimetre on October 24 to 7,120,000 per cubic millimetre on December 30. However, headaches were reduced and the general condition steadily improved.

On account of the continued optimistic reports from overseas it was decided that a further injection should be given, and on January 10, 1948, 3.8 millicuries of  $P^{32}$  in 22 millilitres of normal saline solution were given over a period of twenty-two minutes. The number of erythrocytes continued to rise, and on March 17 it had reached 7,560,000 per cubic millimetre; but by June 23 it had fallen to 5,830,000 per cubic millimetre. On September 23 a blood count gave the following information: the erythrocytes numbered 6,300,000 per cubic millimetre, the haemoglobin value was 20 grammes per centum and the leucocytes numbered 8850 per cubic millimetre.

Dr. Nisbet said that from the first injection of phosphorus, although no extraordinary change occurred in the blood picture, there was a distinct improvement in the man's well-being. His desire and ability for work returned to a great degree, and his general outlook on life was happier and more content; his headaches had ceased since the first dose was given.

The second patient, a female, aged forty-nine years, had first attended the radiotherapy department on November 30, 1944, complaining of weakness and lassitude present for the previous four or five years. She for some time noticed an abdominal tumour which was increasing in size. Breathlessness was easily induced and her ankles swelled on the slightest exertion. The patient had been an in-patient in October, 1944, when a diagnosis of myeloid leucæmia was made.

On examination, the patient was seen to be a thin woman with a prominent abdomen; she had a high colour over the malar bones, but the skin of the other parts of her head, neck and arms had a dull, yellowish tinge. On abdominal palpation the anterior surface of the spleen was found to measure 42 centimetres by 22 centimetres and the abdominal circumference at the umbilicus was 90 centimetres. The spleen occupied about three-quarters of the abdomen; only an area in the right hypochondrium and the upper part of the right lumbar region were apparently free. The spleen was not tender, and was firm and smooth, with regular notching of the anterior margin. The liver was not palpable. No enlarged glands were palpable. A blood count at that time gave the following results: the erythrocytes numbered 6,120,000 per cubic millimetre and the leucocytes 12,500 per cubic millimetre, the haemoglobin value was 123% (19.2 grammes per centum), and the colour index was 1.05; blood platelets were scanty and some large forms were present; of the leucocytes, 66.5% were neutrophile cells, 1.0% eosinophile cells, 1.0% basophile cells, 17.5% lymphocytes, 4.0% monocytes, 5.0% band forms, 2.0% metamyelocytes and 3.0% neutrophile myelocytes.

X-ray therapy was given to the spleen on December 4 and 11, 1944, and other small doses were given on January 15 and April 16, 1945. The spleen did not decrease much in size after this X-ray treatment. Investigation of the blood picture revealed little decrease or change in the leucocytes, but by February the number of erythrocytes had fallen to 4,800,000 per cubic millimetre and the haemoglobin value to 14.9 grammes per centum. The leucocytes numbered 6150 per cubic millimetre. Platelets were scanty. Little change in the blood count occurred up to June, 1945. Sixteen pounds in weight were gained over this period, and the patient felt well. In June, 1946, the size of the spleen had decreased considerably, the tip being about one inch below the umbilical level and about one inch to the right of the midline. The patient's general condition was good. A blood count at that time revealed a fairly pronounced increase in the number of erythrocytes and the haemoglobin value; on May 30, 1946, the erythrocytes numbered 6,200,000 per cubic millimetre, the haemoglobin value was 18.5 grammes per centum and the leucocytes numbered 7500 per cubic millimetre. In August, 1946, it was found that the spleen was almost as large as originally. On account of the amount of

previous X-ray therapy, it was considered inadvisable to give any more at that time. In October, 1946, the spleen had been reduced to its previous dimensions, one inch below the umbilical level and one inch to the right of the mid-line, and the number of erythrocytes had fallen to 5,100,000 per cubic millimetre and the haemoglobin value to 14.9 grammes per centum. It was then decided that the diagnosis was one of polycythaemia.

In November, 1947, the number of erythrocytes had reached over 6,000 per cubic millimetre, and it was then decided to attempt treatment by means of radioactive phosphorus. A sternal puncture was performed and a picture of polycythaemia was revealed. An injection of four millicuries of  $P^{32}$  was given on November 27, 1947. A fortnight after this the number of erythrocytes rose to 7,100,000 per cubic millimetre, the haemoglobin value to 17 grammes per centum and the leucocytes to 10,000 per cubic millimetre. On December 19 a blood count gave the following information: the erythrocytes numbered 8,040,000 per cubic millimetre, the haemoglobin value was 20.5 grammes per centum, and the leucocytes numbered 7450 per cubic millimetre. By January 5, 1948, the blood picture had changed to the following figures: erythrocytes 7,350,000 per cubic millimetre, haemoglobin value 21.9 grammes per centum (141%), leucocytes 5500 per cubic millimetre. Two immature cells were seen per 200 cells counted. On January 16 the erythrocytes numbered 7,620,000 per cubic millimetre, the haemoglobin value was 19.7 grammes per centum (127%) and the leucocytes numbered 3800 per cubic millimetre. No immature leucocytes were seen. On February 20 there was a decrease in the number of erythrocytes, the haemoglobin value was 16.1 grammes per centum and the leucocytes numbered 4300 per cubic millimetre. All this time the blood platelets were scanty. On March 12 the haemoglobin value was 18.3 grammes per centum, and the leucocytes numbered 7500 per cubic millimetre with four immature cells. On April 16 the haemoglobin value was 16.5 grammes per centum, the leucocytes numbered 4500 per cubic millimetre and the platelets were moderately plentiful. On August 2 the haemoglobin value was 19.4 grammes per centum, the leucocytes numbered 5600 per cubic millimetre and platelets were plentiful. Unfortunately no actual erythrocyte count was undertaken.

Dr. Nisbet said that during the past nine months the patient had felt well; she had a good appetite and had lost no weight, although the spleen had not decreased in size and was still at the level of the umbilicus. On the date of the meeting a blood count gave the following information: the erythrocytes numbered 7,860,000 per cubic millimetre, the haemoglobin value was 18.5 grammes per centum and blood platelets were scanty; the leucocytes numbered 6250 per cubic millimetre, 69% being neutrophile cells, 3% eosinophile cells, 1% basophile cells, 18% lymphocytes, 4% monocytes, 3% band forms and 2% metamyelocytes.

Dr. Nisbet commented that although in both cases there had been no dramatic change in the blood picture, the fact that the patients themselves felt so much better in health and were able to carry on work which was previously impossible warranted the treatment that had been carried out. It seemed that when a radioactive isotope was used, medical men should be prepared to carry on the administration over a long period at intervals which would be regulated by the clinical and blood pictures.

#### Naso-Pharyngeal Tumour (Lymphosarcoma).

DR. R. H. BETTINGTON and DR. SYLVIA BRAY showed a male patient, aged fifty-one years, who in December, 1947, had presented himself complaining of having suffered from catarrh intermittently for years. For the past four months he had noticed blockage of the right side of the nose, becoming progressively worse, with a little sputum mainly in the morning and a small loss of weight. A blood count revealed no abnormality apart from slight toxic degeneration in the white cells. The Wassermann and Kahn tests produced negative results.

The patient was examined under anaesthesia. A tumour mass was found filling the whole of the post-nasal space; it was soft, lobulated and pedunculated. Biopsy examination on December 1 showed that the tumour consisted of tissue resembling abnormal lymphoid tissue. The majority of the cells were larger than mature lymphocytes. There were no well-defined follicular structures. Near the surface in one situation the tissue was necrotic. The appearances strongly suggested lymphosarcoma. A skiagram of the sinuses showed that the right frontal sinus was large and slightly hazy. The right ethmoid cells were dull. The right antrum was smaller than the left. There was no evidence of bone erosion.

The patient was given deep X-ray treatment to the right and left sides of the naso-pharynx during December. The

tumour shrank rapidly; but early in March, 1948, there was seen to be a small, soft swelling in the right posterior nasal wall, just in front of the Eustachian cushion. This was removed by diathermy. On March 8, 1948, the pathologist reported that there were similar appearances in a section from the tonsil, but hyaline connective tissue was much more abundant, and in places there were numerous lipid-laden histiocytes and some debris from degenerating cells.

As the differences between individual tumour cells seen in the previous biopsy and normal lymphoblasts were slight, it was difficult to determine whether the tissue in the present sections was lymphoid tissue greatly altered by irradiation or neoplasm similarly affected. Professor W. K. Ingalls somewhat favoured the latter view.

In June, 1948, there was still a small, flattened tumour in the right postero-lateral naso-pharyngeal wall; so he was given some intraoral X-ray therapy after a further course of X-ray therapy applied externally to the naso-pharynx, on the right and left sides.

On examination of the patient on August 24, 1948, slight fullness was still present in the right post-nasal space. On September 23 the right palate muscles were weak as compared with the left. There was some slight redness in the mucosa. On examination of the post-nasal area and pharynx, no tumour was detected, the posterior wall of the nose and pharynx being smooth and regular. No enlarged glands were palpable in any areas.

#### Tumour of the Right Tonsil.

DR. BETTINGTON and DR. BRAY also showed a male patient, aged sixty-five years, who had first presented himself in December, 1947, having been referred for post-operative irradiation after left orchidectomy for seminoma. That operation had been performed on October 30, 1947. The Wassermann and Kahn tests produced negative results, and a blood count gave normal findings.

In July, 1948, the patient reported back with a huge tumour of the right tonsillar area, about four and a half to five centimetres in diameter. It was soft and dark red, with the tonsillar pillars surrounding it, and the tumour presenting a rough folded surface with some slough, and extending almost across to the left tonsil and down slightly on the right lateral oro-pharyngeal and pharyngeal wall. He was given intraoral X-ray treatment and external deep X-ray treatment to the right tonsillar and cervical gland area in July and August. By the end of one week of X-ray treatment the tumour had decreased by one-third in volume. On August 20 the right tonsillar area appeared normal except for very slight redness. On September 23 the right tonsillar area was red, but soft and normal in size and shape. There was a little fullness of the post-tonsil and right lateral pharyngeal wall area, but on palpation this was of normal consistency. The naso-pharynx and pharynx appeared normal. The redness of the area was a normal finding, because the X-ray reaction had not yet completely subsided. A gland was still palpable in the right cervical area deep to the junction of the upper with the middle third of the sterno-mastoid. This was soft and could easily be mainly of inflammatory origin owing to the X-ray reaction and the tonsillar subsidence.

The comment was made that in view of the histological reports in both these cases it was essential that the patients should be examined for glandular enlargement in other areas over a prolonged period (up to five years or over).

(To be continued.)

#### SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH.

THE COUNCIL of the British Medical Association is prepared to receive applications for research scholarships as follows: an Ernest Hart Memorial Scholarship of the value of £200, a Walter Dixon Scholarship of the value of £200, four Research Scholarships each of the value of £150.

These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention or treatment of disease.

In addition, applications are invited for the award of the following research scholarship: the Insole Scholarship, of the value of £250, for research into the causes and cure of venereal disease.

Each scholarship is tenable for one year, commencing on October 1, 1949. A scholar may be reappointed for not more

than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research, but may be a member of His Majesty's Forces or may hold a junior appointment at a university, medical school or hospital, provided the duties of such appointment will not, in the opinion of the Science Committee, interfere with his work as a scholar.

*Conditions of Award: Applications.*—Applications for scholarships must be made not later than March 31, 1949, on the prescribed form, a copy of which will be supplied on application to the Secretary, British Medical Association House, Tavistock Square, London, W.C.1.

Applicants are required to furnish the names of three referees who are competent to speak as to their capacity for the research contemplated.

#### VICTORIAN BRANCH NEWS.

THE following result of the ballot for the 1949 Council is published at the request of the Medical Secretary of the Victorian Branch:

Place.	Name.	Number of Votes.
1.	Southby, Robert	570
2.	Hurley, Victor	568
3.	MacCallum, P.	551
4.	Norris, F. Kingsley	549
5.	James, H. Maxwell	518
6.	Dale, John	514
7.	Johnston, Leonard W.	510
8.	Furnell, H. G.	500
9.	Lindell, J. H.	495
10.	Brown, Arthur	483
11.	Gowland, J. H.	476
12.	Byrne, Charles	462
13.	Thomas, Douglas	453
14.	Smith, Kenneth	438
15.	Hayward, John	327
16.	Penington, Geoffrey A.	303
17.	Mitchell, Leonard	291
18.	Bearham, George B.	216
19.	Schafer, N. T. Hannaford	120
Number of votes counted		596
Informal votes		6

#### Correspondence.

##### A CONFERENCE OF RADIOLOGISTS.

SIR: Mr. Rank is correct in assuming that I am concerned that plastic surgeons are still showing cases of necrosis following irradiation of plantar warts as a not unusual result thereof. One could hardly be otherwise, even though one has had no personal experience of the production of this sequel.

In speaking of "great numbers" one had in mind the some two thousand cases which, it is estimated, are treated each year in Sydney. In a series of 406 consecutive cases treated at one skin clinic over a four-year period by superficial X-ray therapy, follow-up has shown that 82% have been cured, that is, the lesion has disappeared within twelve weeks, leaving apparently normal skin, and has remained so cured at the date of writing. If not, or if recurrence occurred, they were regarded as a failure and other forms of treatment advised; in most of the latter cases other forms of treatment are still being ineffectually carried out. Other workers claim better results.

Whatever makes a papilloma more radio-sensitive than the surrounding skin—which should be screened during treatment—it is realized that a lesion resembling a plantar wart but caused by friction and/or pressure will if irradiated in the continued operation of the cause be not cured but exposed to the danger of breakdown. Approximately 25% of the lesions we see as "plantar warts" fall into this category and should be referred for their proper orthopaedic treatment.

It seems true that excessive and especially repeated treatment may lead to necrosis in some cases.

In undertaking to review his cases to arrive at their real significance Mr. Rank is doing for all concerned in the treatment of these pathologically innocent but quite disabling lesions a service for which they will be very grateful. I do suggest he take these factors into account when assessing his evidence.

To condemn an agent, however, because of results which, on analysis, may well prove to be due to its misapplication is surely not logical.

Yours, etc.,  
ADRIAN JOHNSON.

Craigish,  
185, Macquarie Street,  
Sydney.  
November 30, 1948.

#### Medical Prizes.

##### THE MOXON MEDAL.

THE Moxon Medal of the Royal College of Physicians, London, has been awarded to Professor N. Hamilton Fairley, C.B.E., F.R.S., a graduate of the University of Melbourne, and Director of the School of Tropical Medicine, London.

Shortly after the death of the late Walter Moxon, M.D., in July, 1886, a sum of £515 8s. 6d. was subscribed and given to the Royal College of Physicians in trust, confirmed by deed 1930, to found a memorial to the deceased. After the cost of erecting a bronze tablet in memory of Dr. Moxon at Guy's Hospital had been met, the remainder was invested in the purchase of a sum of £435 15s. 5d. 2½% annuities.

The income thence derived is expended in awarding every third year a gold medal of the value, so far as the income permits, of £30 to the person who is deemed to have most distinguished himself by observation and research in clinical medicine. The award, which is not restricted to British subjects, is made by the College on the recommendation of the Council at the quarterly meeting of the College in July, and the medal is presented to the recipient on the occasion of the Harveian Oration.

The Moxon medallists since 1918 are as follows: 1918, Sir Frederick Walker Mott; 1921, Sir Clifford Allbutt; 1924, Sir Leonard Rogers; 1927, Sir Henry Head; 1930, Frederick Parkes Weber; 1933, George R. Minot; 1936, Sir Edward Mellanby; 1939, Sir Arthur Frederick Hurst; 1942, Leonard Gregory Parsons; 1945, Sir Alexander Fleming.

#### Post-Graduate Work.

##### THE MELBOURNE PERMANENT POST-GRADUATE COMMITTEE.

THE following is a summary of medical post-graduate facilities for 1949 in Victoria.

##### Courses for General Practitioners.

A dermatology course, consisting of approximately ten clinical lectures and demonstrations, arranged by the British Association of Dermatology and Syphilology (Victorian Branch), will be conducted two afternoons a week from March 1.

A gynaecology and obstetrics refresher course will be conducted at the Women's Hospital, Melbourne, from August 15 to 26 inclusive. It will consist of daily ward rounds conducted in groups, when the routine work of the hospital will be demonstrated and taught, and a series of lecture demonstrations given. Residence at the hospital will be available and is advised. Fees: course, £10 10s.; residence at hospital, £3 10s. per week.

This course will be followed by an intensive general refresher course from August 29 to September 9, inclusive, consisting of clinical lectures and demonstrations at various hospitals each morning and afternoon, and covering current practice and recent advances in medicine and surgery. Fee: £10 10s.

##### Week-End Courses.

Week-end courses in country centres, each consisting of three or four lecture demonstrations and, in most cases, ward rounds, will be held as follows: February 19-20, at Ballarat; March 5, at Geelong; March 19-20, at Mooroopna; April 2-3, at Sale; June 18-19, at Mooroopna; August 6-7,

at Mildura; October 8-9, at Horsham; November 19-20, at Hamilton. Fees: £2 2s. per course. Monthly demonstrations are arranged at Flinders Naval Depot.

#### *Course by Overseas Lecturer.*

Professor L. S. P. Davidson, Professor of Clinical Medicine, University of Edinburgh, will give two lectures in the Medical Society Hall, 426, Albert Street, East Melbourne, at 8.15 p.m. Tuesday, February 8: "Haematology: The Diagnosis and Treatment of Anaemia." Thursday, February 10: "Rheumatoid Arthritis: Its Aetiology, Diagnosis and Treatment." Fee: £1 1s. These two will form part of a series of lectures on blood disorders, suitable for candidates for M.D. Part II and M.R.A.C.P. examinations, arranged by Dr. J. A. McLean, and will be covered by the fee paid for that course.

#### Courses for Higher Degrees and Diplomas.

##### *Part I.*

Courses in anatomy, physiology, pathology and physics suitable for candidates for Part I M.D., M.S., D.G.C., D.L.O., D.O., D.D.R., D.T.R.E., D.A. and D.P.M. examinations will be conducted at the University of Melbourne on Monday and Wednesday afternoons from March to August, provided at least five candidates apply. The fee for Part I of all courses is thirty guineas.

##### *Part II.*

The following courses will be held.

**Medicine.**—Courses suitable for candidates for M.D. II and M.R.A.C.P. examinations. Clinical lecture demonstrations dealing with medical problems will be conducted during the year by various clinicians under the direction of senior specialists on two afternoons a week from February to early in August, except during March, when the Royal Australasian College of Physicians will be holding a course. While the demonstrations are available to all registered medical practitioners, the class is limited and priority will be given to those preparing for higher medical qualifications. There will be six demonstrations in each series, given at the various hospitals. They will be on blood disorders, under the direction of Dr. J. A. McLean, commencing on February 1; on gastro-intestinal disorders, two lectures only, by Dr. M. V. Clarke, on February 28 and March 7, supplementary to lectures given in the Royal Australasian College of Physicians course; on thoracic diseases, under the direction of Dr. Clive Fitts, commencing on April 5; on pediatric disorders, under the direction of Dr. Mostyn L. Powell, commencing April 26; on endocrine disorders, under the direction of Dr. Keith D. Fairley, commencing May 17; on cardiology, under the direction of Dr. H. Hume Turnbull, commencing June 7; on neurology, under the direction of Dr. E. Graeme Robertson, commencing June 23; on renal disorders, under the direction of Dr. Leslie Hurley, commencing July 12.

The fee for each of these courses is £3 3s., except in the case of the course in gastro-intestinal disorders, which is £1 1s. Those attending the course on blood disorders will be eligible to attend Professor Davidson's lectures free of charge.

A course in medicine suitable for candidates for M.R.A.C.P. and M.D. Part II examinations, but also open to all graduates, will be conducted by the Royal Australasian College of Physicians on three days a week from February 22 to March 29, and probably a second course will be held in August and September.

**Surgery.**—Courses suitable for M.S. Part II or F.R.A.C.S. candidates (final examination), but open to all graduates, will be conducted by the Royal Australasian College of Surgeons.

Weekly pathological demonstrations and surgery clinics conducted by the College at Prince Henry's Hospital on Fridays at 2.15 and 2.45 p.m. are also suitable training for these examinations.

**Diplomas.**—Upon receipt of five applications, courses will be arranged suitable for Part II of the required diploma and will be conducted between March and September, pathology classes commencing on March 16. Lectures and demonstrations for D.D.R. and D.T.R.E. candidates will be arranged in conjunction with the Australian and New Zealand Association of Radiologists.

#### *Individual Post-Graduate Clinical Study.*

Attendances at general or special clinics, singly or as a series, can be arranged, with due notice, to meet individual needs. Fee: £1 1s. for enrolment and £1 1s. per week of attendance.

#### *Overseas Post-Graduate Study.*

It is anticipated that during 1949 the post-graduate facilities within the United Kingdom for those coming from Australia will continue to be limited. Any graduate intending to proceed overseas is advised to communicate personally with the director or his assistant directors, who will be glad to make available a considerable amount of material on this subject and recent advice from returning post-graduates. Prior to departure, intending visitors may obtain information as to facilities available, and in most cases may have courses arranged through the corresponding committee in England.

#### *Various Facilities Provided by other Post-Graduate Bodies.*

Throughout the year regular clinical meetings are conducted by the following clinical schools and societies: Royal Melbourne Hospital; Alfred Hospital; Saint Vincent's Hospital; Prince Henry's Hospital; Melbourne Paediatric Society (at the Children's Hospital); Women's Hospital; Eye and Ear Hospital; Mental Hospital, Royal Park; Repatriation Hospital, Heidelberg; Australian and New Zealand Association of Radiologists; Australian Society of Anaesthetists; Victorian Medical Women's Society.

Attendance at these is by invitation and details may be obtained from respective hospitals and societies or from the Melbourne Permanent Post-Graduate Committee. The British Medical Association (Victorian Branch) and its various sections and subdivisions also hold meetings of clinical interest. Courses conducted by the Royal Australasian College of Physicians and the Royal Australasian College of Surgeons have been detailed elsewhere in this summary.

**Alfred Hospital: Clinical Week.**—During the second half of 1949 the Alfred Hospital will conduct a series of lectures and clinical demonstrations extending over several days, in conjunction with the projected visit of an overseas lecturer which is being arranged by the Australian Post-Graduate Federation in Medicine. Details will be announced later.

**Australasian Association of Psychiatrists.**—A short course of lecture demonstrations, arranged in conjunction with the Melbourne Permanent Post-Graduate Committee, will be held in the latter part of the year. Details will be announced later.

#### *Hospital Information.*

Information concerning the visiting and operating days of members of hospital honorary staffs and daily operating lists are posted on the notice boards of the Melbourne Permanent Post-Graduate Committee at 426, Albert Street, East Melbourne.

#### *Visual Aids.*

A "movie" sound projector, presented to the Victorian Branch of the British Medical Association by the British Medical Insurance Company of Victoria, Limited, and a strip film projector are available for use by lecturers.

#### *Application for Courses.*

Application for admission to courses conducted by the committee should be made not later than two weeks before commencement. This should be accompanied by the fee, or, in the case of ex-service medical officers, information that they have been accepted for training in 1949 under the Commonwealth Reconstruction Training Scheme.

#### *Obituary.*

##### *ALEXANDER JOHN PARK.*

We are indebted to Dr. Robert Hughes for the following appreciation of the late Dr. Alexander John Park.

The late Alexander John Park, whose death occurred on October 13, 1948, was born at Glen Barra, in the Tamworth district of New South Wales, in the year 1873. After completing his school education at the East Maitland Grammar School, he proceeded for his medical studies to Edinburgh, where he graduated in 1894. He practised there for a while with the late Dr. T. Thyne, returned for a short time to West Maitland, and finally in 1898 settled in Narrabri, where he remained in active practice until two or three years before his death.

In addition to being an outstanding figure in the medical world, Dr. Park took an active part, and played an important role, in public affairs, and did more than his share in helping in the progress and development of Narrabri and district. His activities were too numerous to mention in detail, but

included the tenure of such positions as alderman in the local Municipal Council for a number of years, president of the Pastoral, Agricultural and Horticultural Association for twenty-five years, first president, and later patron, of the newly formed Bowling Club, active committee man of various patriotic bodies during both world wars, and member of the management committee of the Presbyterian Church.

He also found time for pastoral and agricultural activities, and bought a property known as "Cumnock", on Bullawa Creek, a few miles from Narrabri. Here he founded a red poll stud, cattle from which have won several prizes at the Royal Agricultural Society exhibition in Sydney. His knowledge of red polls was such that a few years ago the Royal Agricultural Society honoured him by appointing him a judge in that section.

The above brief account gives some small idea of the part played by Dr. Park in the development and community life of the town and district in which he lived and worked for nearly half a century. Of his medical work I can speak with greater knowledge, as I had the privilege of working with him as a colleague for eleven years. During the last world war our association was very close, as our third colleague was absent with the Australian Army Medical Corps, and his help to me on many occasions was invaluable, and was always given graciously and willingly. His medical knowledge must have had a sound foundation, and when to that was added the extensive experience of a widespread and busy general practice—an experience from which his keen mind derived the greatest possible benefit—no assurance is needed from me as to the quality of his work. He was one of the surgical pioneers of the north-west of New South Wales, and there were few general surgical operations which he could not undertake with the confidence bred of sound knowledge and wide experience, and with the meticulous care for which he was noted. He was an ideal consultant, and his fame soon spread to every part of the north-west, and led to many visits to far-distant parts. Of those visits, in the early days before the horseless buggy, he could tell some almost unbelievable tales.

He is survived by his widow, one son and five daughters, and was predeceased by a son and daughter.

#### FREDERIC MAURICE PURCHAS.

We regret to announce the death of Dr. Frederic Maurice Purchas, which occurred on December 3, 1948, at Camden, New South Wales.

#### WILLIAM LEONARD MILLETT.

We regret to announce the death of Dr. William Leonard Millett, which occurred on December 3, 1948, at Atherton, North Queensland.

#### Naval, Military and Air Force.

##### APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 158 and 163, of November 25 and December 2, 1948.

##### PERMANENT NAVAL FORCES OF THE COMMONWEALTH (SEA-GOING FORCES).

##### Emergency List.

*Transfer to Retired List.*—Surgeon Lieutenant-Commander Jack Rupert Law Willis is transferred to the Retired List, dated 17th October, 1948.

##### ROYAL AUSTRALIAN AIR FORCE. Permanent Air Force: Medical Branch.

The notification respecting the appointment to a short service commission of Flying Officer George McLean (409563) which was approved in Executive Council Minute No. 48 of 1948, and which appeared in *Commonwealth of Australia Gazette* No. 148, dated 21st October, 1948, is amended to include the words "on probation".

The notification respecting the appointment to a short service commission of Flight Lieutenant Brian Stanley Woods (297502) which was approved in Executive Council Minute No. 48 of 1948, and which appeared in *Commonwealth of Australia Gazette*, No. 148, dated 21st October, 1948, is amended to include the words "on probation".

#### Medical Appointments.

Dr. Andrew Norman Dickson has been appointed deputy quarantine officer at Queenscliff, Victoria, under the Quarantine Act, 1908-1947.

#### Diary for the Month.

- JAN. 5.—Western Australian Branch, B.M.A.: Council Meeting.  
JAN. 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
JAN. 11.—New South Wales Branch, B.M.A.: Council Quarterly.  
JAN. 13.—South Australian Branch, B.M.A.: Council Meeting.  
JAN. 13.—Victorian Branch, B.M.A.: Organization Sub-committee.  
JAN. 14.—Queensland Branch, B.M.A.: Council Meeting.

#### Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

**New South Wales Branch** (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

**Victorian Branch** (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

**Queensland Branch** (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

**South Australian Branch** (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

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